

SANDY BOULEVARD

RESURFACING AND STREETScape PROJECT PLAN

City of Portland Office of Transportation

Adopted April 6, 2005



SANDY BOULEVARD RESURFACING AND STREETScape PROJECT

Citizen Advisory Committee

Lois Achenbach, Hollywood Neighborhood Association
Jan Carr, Salvation Army
Paul Clark, Hollywood Boosters
Dave Crout, Rose City Park Neighborhood Association
Patrick Donaldson, Hollywood Boosters
Susan Foster, Smart Travel Press
Tom Gainer, Bicycle Transportation Alliance
Jim Howell, Hollywood Development Corporation
Erik Jenson, Kerns Neighborhood Association
Kirsten Jewel, Hollywood Boosters
Steven Koch, Rose City Park Neighborhood Association
Alex Laws, Timberline Dodge
Gary Naylor, Laurelhurst Neighborhood Association
Brad Paymar, Grant Park Neighborhood Association
Brad Perkins, Perkins Realty
Trudi Rahija, Hollywood Neighborhood Association
Jessica Roberts, Bicycle Transportation Alliance
Dave Russell, Dave Russell Motor Co
Michael Whitmore, Kerns Neighborhood Association
Rod Yoder, Pedestrian Advisory Committee

Portland City Council

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Dan Saltzman, Commissioner
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Office of Transportation

Brant Williams, Director
Portland Office of Transportation
Donald Gardner, Manager
Transportation Engineering and Development
Greg Jones, Manager
Project Management Division

Technical Advisory Committee

George Bean, Bureau of Maintenance
Debbie Bichoff, Bureau of Planning
Rob Burchfield, Transportation System Management
Courtney Duke, Transportation Planning Pedestrian
Coordinator
Roger Geller, Transportation Planning Bicycle Coordinator
Jeanne Harrison, Transportation Planning
Joe Hintz, Urban Forestry
Brett Kesterson, Transportation Engineering and
Development
Bill Kloos, Signal and Street Lighting
Tom Liptan, Bureau of Environmental Services
Dave Nunamaker, Bureau of Environmental Services
Young Park, TriMet
Kevin Perry, Bureau of Environmental Services
Tod Rosinbum, Signal and Street Lighting
Kurt Robinson, Bureau of Environmental Services

Project Staff

Chris Armes, Project Manager
Bill Hoffman, Project Manager
Kathy Mulder, P.E., Traffic Engineer
Lewis Wardrip, P.E., Traffic Systems Designer

Consultant Team

URS Corporaton
Lloyd Lindley, ASLA
Nevue Ngan Associates
Design Data Concepts, Inc.
Parametrix

EXECUTIVE SUMMARY

This report documents the goals, process and recommendations of the Sandy Boulevard Resurfacing and Streetscape Project. For over a year, City of Portland project staff and a team of consultants worked with stakeholders in the community to develop recommendations for improving Sandy Boulevard for pedestrians, bikes and vehicles.

The Sandy Boulevard Resurfacing and Streetscape Project addresses the section of Sandy Boulevard between NE 13th and 47th Avenues. The project is made possible by a grant awarded to the City of Portland by the Oregon Department of Transportation, and an intergovernmental agreement that transferred jurisdiction of Sandy Boulevard from ODOT to the City. The major item of work is to resurface the roadway. In addition, the project will implement parts of the *Hollywood and Sandy Plan*, which the Bureau of Planning completed in 2000.

Throughout the project, City and consultant staff worked with the Citizen's Advisory Committee (CAC) and the broader community (via three open houses) to identify opportunities and constraints, potential solutions, and recommended improvements.

Project staff completed urban design and transportation analysis for the corridor, building upon previous analyses conducted in 1998 for the *Hollywood and Sandy Plan*. The key areas of analysis addressed:

Left-turn prohibitions that limit connectivity and access. Left turn movements from Sandy Blvd. are restricted to unsignalized intersections and a few signalized intersections.

Corridor safety. High-accident locations, including the intersections of Sandy Boulevard and 37th, 39th and 47th Avenues were evaluated.

Infrequent pedestrian crossings. Much of Sandy Boulevard is an uncomfortable environment for pedestrians, and the street is a barrier between neighborhoods to the north and south.

Transit service and stops. TriMet's bus line 12 stops are inconsistently spaced, and the existing sidewalks do not provide sufficient room for passenger amenities.

Circulation in the Hollywood district. In a focused effort to find alternative solutions to the local circulation issues, the project team investigated several potential changes to the area's circulation patterns.

Sustainable stormwater management. This project is an opportunity to develop water detention and water quality swales to treat stormwater runoff and reduce the volume of runoff that is collected by the city's combined sewer system.

Streetscape. The corridor lacks a consistent pattern of trees, lighting, and pedestrian amenities.

As a result of this planning process, the CAC recommended that the City make improvements throughout the corridor. Improvements will include:

- changes to auto circulation patterns, such as allowing left turns to and from Sandy Boulevard at several locations;
- improved pedestrian access, including seven pedestrian refuge islands, many curb extensions, and driveway consolidation;
- improvements to bicycle access, including a new bicycle connection at NE 22nd Avenue, a bike lane on Sandy Boulevard where it crosses over I-84, and a significant amount of bicycle parking throughout the corridor;
- changes to transit stops, such as new bus-length curb extensions, that will enhance transit comfort and service;
- streetscape elements, such as decorative streetlights at key locations, and new street trees, that will help make Sandy Boulevard more pedestrian-friendly; and
- eight landscaped stormwater sites that will manage runoff in a more sustainable manner while adding a green character to the street.

The next phase of the project includes preliminary and final design of the proposed projects outlined in this report. City staff will continue to work with the CAC and adjacent property owners to refine the project design and plan for implementation.

BACKGROUND

Project Scope

The Sandy Boulevard Resurfacing and Streetscape Project is funded by a grant awarded to the City of Portland by the Oregon Department of Transportation (ODOT). In September 2001 the Portland Office of Transportation (PDOT) applied for \$7,901,742 of Oregon Transportation Investment Act funds (OTIA) to resurface Sandy Boulevard between NE 13th and 47th Avenues, and to implement the first phase of transportation improvements recommended in the *Hollywood and Sandy Plan*. The project was deemed necessary because the pavement surface throughout the project area shows distress and rutting caused by heavy use by buses, trucks and passenger vehicles. In addition, the existing curb exposure is minimal in some segments and provides inadequate separation between vehicles and pedestrians.

The grant application submitted to ODOT also included the jurisdictional transfer in 2003 of Sandy Boulevard from NE Martin Luther King Jr. Boulevard to NE 99th Avenue to the City of Portland. Prior to the transfer, this segment of Sandy Boulevard, also known as US 30 Business, was a State highway entirely within city right-of-way. This split in jurisdiction was unusual and led to confusion regarding operational and maintenance responsibilities.

Historic Sandy Boulevard

Northeast Sandy Boulevard is a major connection in Northeast Portland. Cutting diagonally from Troutdale to

SE 7th Avenue, Sandy Boulevard provided overland access for Native Americans and Oregon Trail immigrants. In 1907, the Portland Railway Light and Power Company developed streetcar service down the middle of the unpaved Sandy Road.¹ This streetcar line supported the development of neighborhoods and commercial centers all along the corridor. Over time, the street was modified repeatedly to better accommodate the growing level of traffic. Capital improvements completed within the Hollywood District during the 1980s do not support the area's transit and pedestrian-supportive plans.

Sandy Boulevard Today

The project area is made up of two distinct segments. The first segment from NE 13th to NE 37th Avenues has the appearance of an old state highway with few pedestrian amenities and many auto-oriented businesses. The dominant feature of this section is a series of "asphalt triangles" that result from the street's skewed relationship to the standard street grid. The second segment from NE 37th to NE 47th Avenues is within the Hollywood Town Center. While this area also has heavy traffic, the landmarks and pedestrian amenities in the area give it a distinct character. The transportation network in this segment is more complex, involving not only the four lanes of traffic on Sandy Boulevard, but also the access routes on and off of I-84 and a regional light rail station and transit center.



The project area includes the Sandy Boulevard right-of-way between NE 13th and 47th Avenues

¹ City of Portland Bureau of Planning, *Hollywood and Sandy Plan, "History and Urban Design"*. 2000.

Vehicular access is limited north and south of Sandy Boulevard due to left turn restrictions and the proximity of the I-84 on-ramps. As a result, Sandy Boulevard functions well for moving vehicles *through* the district but does not support the Main Street and Town Center designations *within* the district.

The current mix of land uses along Sandy Boulevard includes industrial, auto-oriented commercial, and other nonretail activities, as well as some retail storefronts and a few apartment buildings. Many of the existing commercial storefront buildings are located at major intersections and other locations that were once streetcar stops, and date to the streetcar era.

Plans for the Future

The Metro *Region 2040 Growth Concept Plan* designates Sandy Boulevard as a main street between NE 12th and 82nd Avenues, and the Hollywood District as a town center. Hollywood is also part of the station community that surrounds the 42nd Avenue light rail station. The city designates the Hollywood District as a Pedestrian District between NE 37th and 47th Avenues, Tillamook Street, and the Banfield Highway (I-84). These designations reflect the historic role of Sandy Boulevard and the Hollywood District as commercial areas that serve the surrounding residential neighborhoods.

The City Council adopted the *Hollywood and Sandy Plan* as a comprehensive policy and implementation plan to address the regional designations mentioned above. The vision and urban design concept for Sandy Main Street calls for enhancing business and economic vitality, reinforcing connections to adjacent neighborhoods, enhancing pedestrian experiences, improving the transportation system, and promoting new mixed use and residential developments. Sandy Boulevard from 12th to 37th Avenues is further envisioned to have commercial nodes or centers of activity at key intersections (12th, 20th, 28th, and 33rd). The areas in between the nodes are envisioned to be mixed-use areas with new residential uses to support existing commercial and employment. Specifically, Multimodal Policy 4A calls for supporting development of the Sandy Main Street as an active mixed-use area by improving access and safety along and to the street and by improving the pedestrian environment. The Sandy Boulevard Resurfacing and Streetscape Project will implement many of the multimodal transportation actions and will support broader plan implementation.

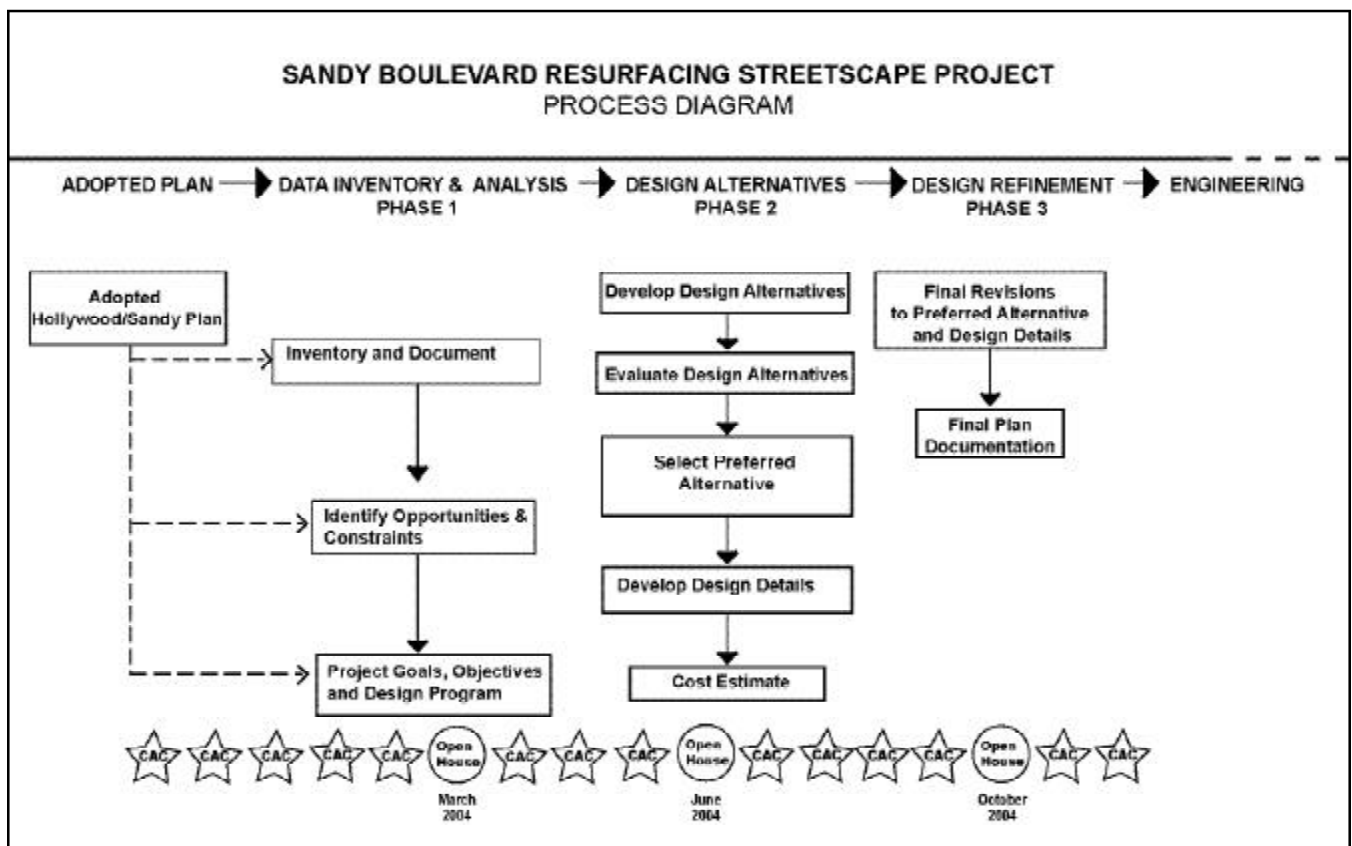
Community Outreach

During the planning phase, project staff worked with the community to identify needs and improvements, building on the community involvement that was the cornerstone of the *Hollywood and Sandy Plan*.

A Technical Advisory Committee (TAC) and the CAC each met over a period of 14 months to review the project team's work, give direction, and listen to community comments. Working with the CAC and the broader community, the project team identified opportunities and constraints, potential solutions, and final recommendations. The CAC consisted of representatives from adjacent neighborhoods, the Bicycle Transportation Alliance, the Portland Pedestrian Advisory Committee, the Hollywood Boosters, Hollywood Development Corporation and owners of businesses along Sandy Boulevard.

Community open houses were held during each phase of the project to ensure that the community could review the work and give input before the project moved forward. Information was also available on the project web page.

- At the March 2004 open house, the project team presented information about the public involvement process, schedule, the *Hollywood and Sandy Plan*, and the Sandy Boulevard Resurfacing and Streetscape Project. Participants reviewed information on existing conditions, such as transit ridership, crash data, vehicular volume and speeds, and bike routes.
- At the June 2004 open house, attendees reviewed the opportunity and constraint analysis, conceptual approaches and design details for proposed improvements.
- At the October 2004 open house the community was invited to review the refined alternative and rank the proposed improvements and locations for implementation. All of the information received at the open house was compiled and reviewed by the CAC, which prioritized improvement areas to move forward to design and construction.



PROJECT PROCESS

Planning Process

The City of Portland completed the planning and development process for the Sandy Boulevard Resurfacing and Streetscape Project in three phases over approximately 14 months. During Phase One, the project team collected information and analyzed the existing conditions. The project participants then developed the project goals and a list of opportunities and constraints.

Phase Two included the development of design alternatives and details, as well as exploration of conceptual alternatives and approaches. Project staff worked with the community to review and refine alternatives and details, and then compiled the solutions into project alternatives. During this phase, the project team worked with Bureau of Environmental Services (BES) staff to identify locations where larger landscaped areas could be developed to retain stormwater. This type of treatment accomplishes three goals - filtering stormwater, reducing the volume of water that enters the sewer system, and providing additional landscaping and interest to the street.

During Phase Three the project team refined the design details and prioritized locations to create a list of improvements for construction. All options were reviewed by the Citizen Advisory Committee (CAC) and at the community open house to ensure the larger project goals and community values were reflected in the final list of improvements.

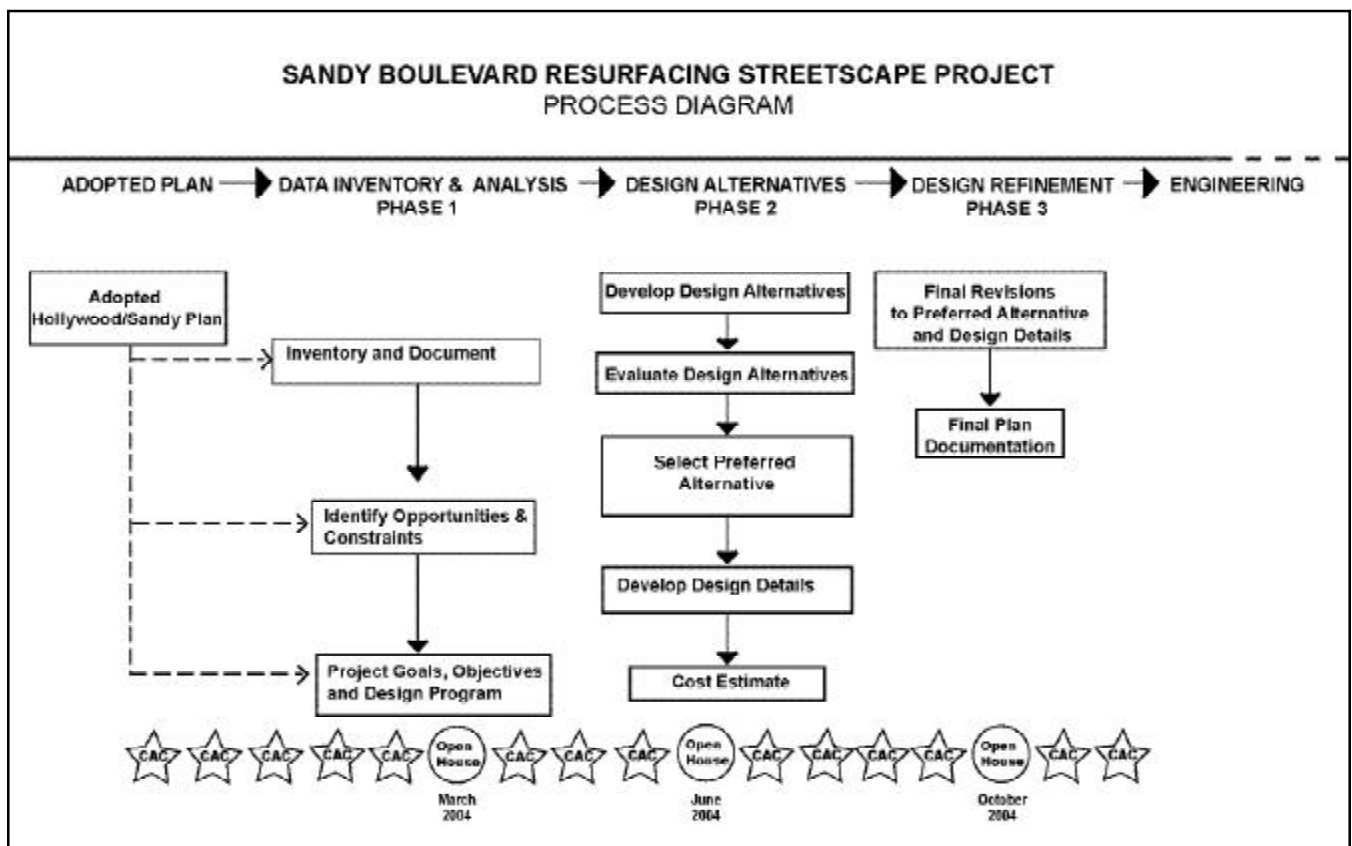
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GOALS AND GUIDING PRINCIPLES

Participants in the planning process developed a set of goals, objectives and guiding principles for the project. The goals outline the participants' intentions for the project outcome, and the different ways the project should implement city policies outlined in the *Transportation System Plan* and the *Hollywood and Sandy Plan*. These goals guided decision making and prioritization throughout the process. The guiding principles address the fundamental responsibilities of this project.

Project Goals and Objectives

Enhance Pedestrian Safety and Convenience

- Increase opportunities for pedestrians to safely cross Sandy Boulevard.
- Provide a comfortable and accessible environment for pedestrians on Sandy Boulevard.
- Reduce excess driveway width and/or rebuild sidewalks to provide a more comfortable walkway.

Provide Good Connections Between Neighborhoods

- Improve opportunities for pedestrians, cyclists and drivers to access neighborhoods both north and south of Sandy Boulevard.
- Strengthen district and neighborhood gateways.

Improve Drivers' Safety and Convenience

- Improve signage to provide clearer guidance for drivers, in particular access to I-84.
- Improve safety by consolidating excess or unused driveways.
- Maintain the function of Sandy Boulevard as a Major City Traffic Street.

Support Access to Businesses and Residential Neighborhoods

- Maintain truck (freight and service) access to businesses.
- Provide additional opportunities for vehicles to turn left from Sandy Boulevard.
- Provide parking to support businesses and apartments.



Many businesses in the corridor rely on regular freight access.

Improve Bicycle Safety and Convenience

- Increase cyclists' access to businesses on Sandy Boulevard.
- Increase the number of safe crossing opportunities for cyclists.
- Provide good bicycle parking facilities (including art bike racks).
- Improve safety on Sandy Boulevard for cyclists.

Increase Safety and Convenience for Transit Users

- Provide safe and comfortable waiting areas at transit stops.
- Provide consistently spaced stops.
- Provide safe access to transit stops.
- Maintain the function of Sandy Boulevard as a "Streamline" transit corridor, with customer amenities and efficient service.



A pedestrian refuge island at East Burnside Street and 24th Avenue.

Enhance Landscaping

- Develop areas for additional landscaping to achieve stormwater retention.
- Use street trees, planting strips, or other landscape areas to soften the streetscape.

Support the Community Identity

- Make Sandy Boulevard a safe, attractive and comfortable place for shoppers, travelers and residents.
- Enhance the historic character of the street.
- Improve the image, identity and character of Sandy Boulevard and its adjoining neighborhoods.
- Use triangle areas for transit users, bike parking, landscaping and improve pedestrian crossings.
- Identify where the adjacent property owners could use the triangle areas for redevelopment.

These goals and objectives address many aspects of Sandy Boulevard, and not all can be met at every location. Throughout the planning process, project participants were challenged to find balanced solutions that fulfill as many objectives as possible.

Project Guiding Principles

- Support the goals of the *Transportation System Plan* by addressing all modes of transportation.
- Incorporate sustainable approaches to streetscape design.
- Resurface Sandy Boulevard as outlined in the ODOT agreement for this OTIA project.
- Construct improvements along Sandy Boulevard to support its main street and town center designations, as identified in the *Hollywood and Sandy Plan* and acknowledged in the OTIA application submitted to ODOT.
- Coordinate design and construction with the Signal Hazard Elimination Projects at Sandy Boulevard's intersections with NE 16th, 18th, 20th, 24th, and 33rd Avenues.
- Coordinate design and construction with the Bureau of Environmental Services Sandy Boulevard Storage Tank project.
- Gather information about City assets and their condition.



The Hollywood Theater is a corridor landmark.

ANALYSIS

This section summarizes the urban design and transportation analysis that project staff performed throughout the 2004 planning process. This work built upon previous analyses conducted in 1998 for the *Hollywood and Sandy Plan*, but used current information on accident history and the physical environment. Additional detail is available in the *Sandy Boulevard Resurfacing and Streetscape Plan Technical Report*. For information on the 1998 analysis, see the City of Portland's *Hollywood and Sandy Project Existing Conditions Report*.

The Sandy Boulevard Corridor

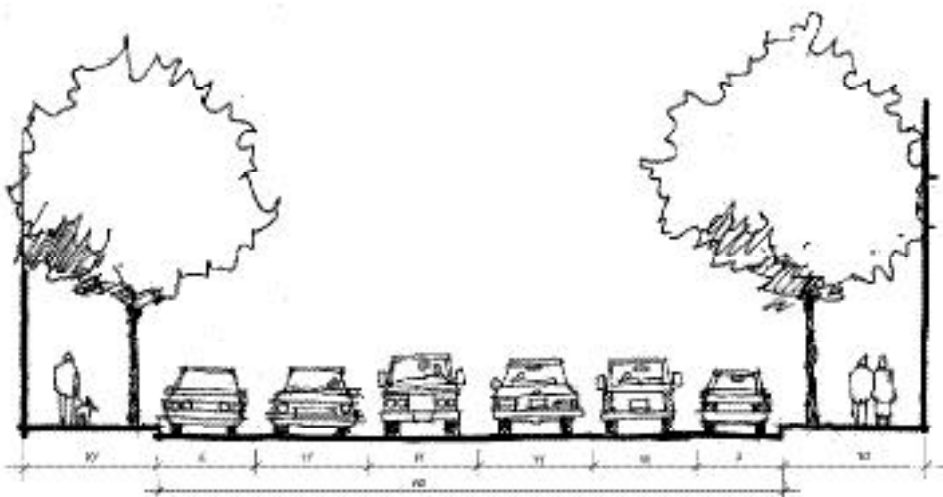
Sandy Boulevard is an important major arterial route through the city of Portland. Enhancing the multi-modal quality of this corridor poses many challenges and opportunities.

The street carries four lanes of traffic with intermittent on-street parking. The Sandy Boulevard right-of-way is 80 feet wide throughout the corridor, though the typical curb-to-curb width of the roadway varies. Left-turns are restricted at most signalized intersections, a condition that reduces connectivity to adjacent neighborhood businesses. Intersections experience long traffic delays during peak

travel periods and locations throughout the corridor experience congestion. Wayfinding is challenging for both autos and pedestrians, especially in the Hollywood district (between NE 37th and 47th Avenues). TriMet's Line 12, a major transit route, makes frequent stops (approximately every other block).

In addition to reduced vehicular connectivity, pedestrian and bicycle access is also problematic. Wide crossing distances, high vehicular speed and the low number of signalized intersections make it difficult for pedestrians to cross Sandy Boulevard. The inconsistent street pattern creates large gaps in the sidewalk network. Access to transit is impeded in many locations and there are few areas where adequate space is available for bus shelters. There are few pedestrian amenities outside of the Hollywood area.

During the course of the planning process, project staff analyzed many aspects of the corridor in search of ways to address these challenges and address community concerns. Below is a summary of the project staff analysis and findings for key issues.



Typical Section
of Sandy Boulevard

Corridor Safety

I-84/NE 37th/Halsey Intersection

Analysis:

Just east of NE 37th Avenue, the on-ramp to westbound Interstate-84 poses several types of safety concerns. Between 1998 and 2002, this location was one of the corridor's highest accident locations.

Another issue at this location has been eastbound motorists turning left from Sandy Boulevard onto the westbound I-84 on-ramp. Though this was not an allowed movement in the original roadway design, the current conditions do not clearly prohibit this movement. The safety issues include confusion as to whether the movement is legal, a queue that develops behind a car waiting for a gap in oncoming traffic, and potential for conflicts between the left-turning car and the on-coming traffic.

Though many areas of the corridor are challenging for cyclists, the wide, poorly defined area near the I-84 ramp is a hazardous location.

Findings:

- ▶ Turning from eastbound Sandy Boulevard onto the westbound I-84 on-ramp will be clearly prohibited.
- ▶ The new design for this location should better define where an eastbound cyclist should ride in relation to vehicles accessing I-84 from Sandy Boulevard. An eastbound bike lane and a right-turn-only lane between NE 38th Avenue and the ramp should reduce the potential for conflict in the intersection.

NE 39th/Broadway Intersection

Analysis:

The intersection with NE 39th Avenue also had a high number of collisions in the five year period from 1998-2002. Although this is a four-leg intersection, the turning movements are complex. NE 39th Avenue is a one-way street (northbound) with a left-turn lane, a through-left turn lane, and a through-right-turn-lane. Between 1998 and 2003, most of the reported accidents were attributable to left turning movements from NE 39th Avenue to Sandy Boulevard.

Additionally, the transition from NE 39th Avenue to Sandy Boulevard, NE Broadway Street, or other Hollywood

destinations is confusing for motorists. The 2001 *State Farm Intersection Safety Study* report on this location found that “northbound vehicles in the left-turn only lane attempt to drive through the intersection, but have to change lanes causing conflicts/collisions with vehicles in the through-left-turn lane.”

Findings:

- ▶ Improve signage to reduce confusion and last-minute decision-making that contributes to collisions.
- ▶ Channelize the intersection to better delineate the turning traffic.
- ▶ Relocate the stop line for eastbound Sandy Boulevard to facilitate the dual left turns.

NE 47th Avenue

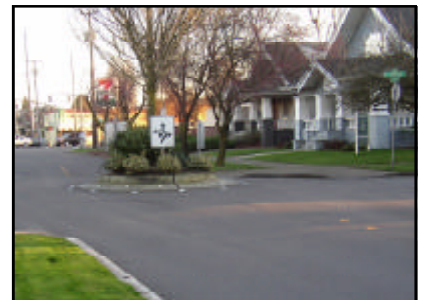
Analysis:

At NE 47th Avenue, left turns are permitted from the through-travel lane on Sandy Boulevard in both directions. A review of the historical accident data revealed that this intersection had a high number of auto accidents, attributable to the permitted (but unprotected) left turn at this signalized intersection.

NE 47th Avenue is an unusual street, because while south of Sandy Boulevard it is classified as a neighborhood collector, to the north it is a local street. It is City policy not to direct traffic from an arterial street like Sandy Boulevard onto a local street with residential land uses, so a northbound left turn will not be allowed once the movement is protected by the signal. (See the Left Turns from Sandy Boulevard analysis summary on page 8 for additional information.)

Findings:

- ▶ Add a westbound left turn pocket and protected signal phase for vehicles turning to southbound NE 47th Avenue. Vehicles will not be allowed to turn left onto northbound NE 47th Avenue.



View of NE 47th Avenue, looking south toward Sandy Boulevard.

Left Turns from Sandy Boulevard

Analysis:

The City's current practice is to allow left turns from a through lane at signals unless there is an operational problem. Typically, the solution is to install a left turn pocket. If this is not feasible, the left turn may be prohibited. In the project study area, left turns are prohibited at most signalized intersections. Allowing left turns may result in significant reductions to arterial traffic capacity and an increase in collisions.

The *Hollywood and Sandy Plan's* recommendations included permitting left turns from the travel lane of Sandy Boulevard at the signalized intersections of NE 16th, 18th, 20th, 24th, 43rd, and 45th Avenues during off-peak hours. However, analysis completed during this project found that to minimize operational impacts, left turn pockets will be required.

The project team completed extensive analysis to determine the specific impacts of allowing left turns at signalized intersections on Sandy Boulevard. They performed three types of analysis – operational, accident regression, and left turn warrant analyses.

Operational Analysis

The operational analysis considered delay to motorists approaching the left-turning vehicle, capacity or the opportunity for left turns, and the queue spillback due the left-turning vehicle. The results for the operational analysis showed that allowing left turns would result in unacceptable queue spillback and cause the intersection to be over capacity during peak periods. When the project team analyzed each hour between the peak periods, they found that at most locations the intersection would operate at an acceptable level for only a few hours a day.

Accident Analysis

The accident regression analysis evaluated the safety of allowing left turns at signalized intersections. This included analysis of other intersections with similar geometry and characteristics. As part of this analysis, project staff examined the signalized intersection of NE 47th Avenue and Sandy Boulevard because left turns from are allowed from Sandy Boulevard from the through lane. The collision history at NE 47th Avenue and Sandy Boulevard showed an extremely high collision rate involving vehicles turning left from Sandy Boulevard. Further examination of the

collision data did not show any specific time of day pattern. Thus, not allowing the lefts during peak periods would not significantly reduce the collisions involving left turning vehicles.

Left Turn Warrant Analysis

The left turn warrant analysis evaluated whether left turn pockets are warranted during the peak and off-peak periods, given the volume of approaching and opposing vehicles, and the estimated left turn demand. There were almost no hours between 7 am and 7 pm when left turn pockets were not warranted. At the intersection of NE 47th Avenue and Sandy Boulevard left turn pockets were warranted for all hours from 7 am to 7 pm.

Findings:

- ▶ The combined results of the above analyses shows that allowing left turns from the lane would result in adverse impacts to operations during most of the day and degradation of safety at all times.

Bicycle Access

Analysis:

Sandy Boulevard is a designated City Bikeway, and many cyclists travel on it between downtown and NE Portland, as well as between the surrounding residential areas and shops along the street. It is, however, a challenging cycling environment.

Due to the right-of-way constraints and the corridor's need for on-street parking and auto capacity, bike lanes are not planned for Sandy Boulevard. As part of the *Hollywood and Sandy Plan* process, one of the alternative street designs reduced Sandy Boulevard to two through travel lanes and a continuous center turn lane. This configuration could provide space for additional bike lanes. However, the resulting auto traffic diversion would have significantly impacted the street network throughout east Portland. Based on this analysis, and the need to maintain on-street parking to support retail development, adding bike lanes throughout the corridor was not considered during this planning process. (For more information on the analysis, see Appendix I of the *Hollywood and Sandy Plan*.)

The infrequency of both signalized intersections along Sandy Boulevard as well as the limited crossings of I-84 constrain bicycle access in the study area. Five existing bikeways cross Sandy Boulevard, at NE 16th, 22nd, 42nd, 43rd, and 47th Avenues. In addition, NE 28th Avenue is a bikeway to the north. For most of these routes, the intersection with Sandy Boulevard is challenging.

Findings:

- ▶ Use signage, signals or lane markings to improve conditions for cyclists crossing Sandy Boulevard on streets with existing bike facilities (NE 22nd, 28th, 42nd, 43rd, and 47th Avenues).
- ▶ Address challenging conditions for cycling on Sandy Boulevard (see page 7 for findings regarding the intersection of Sandy Boulevard and the I-84 on-ramp.)
- ▶ New curb extensions or other improvements should not present additional challenges for cyclists traveling on Sandy Boulevard.
- ▶ Add a significant amount of bike parking throughout the corridor to encourage cyclists to patronize businesses. Central, covered bicycle parking should be located and installed in the Hollywood District.



A bike oasis provides highly visible parking that welcomes cyclists.

Pedestrian Environment

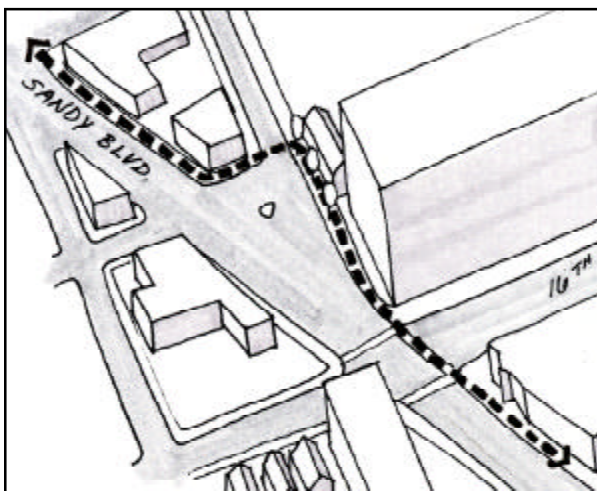
Analysis:

Though Sandy Boulevard serves pedestrian-supportive neighborhoods and in many areas is lined with pedestrian-oriented businesses, the corridor itself is a significant barrier to pedestrian transportation. Wide crossing distances, high vehicular speed and the low number of signalized intersections make it difficult for pedestrians to cross Sandy Boulevard. Because of the infrequent signalized intersection spacing (600 to 1,000 feet in some locations), there are few safe places for pedestrians to cross the 80 foot-wide street.

In addition, the orientation of Sandy Boulevard relative to the surrounding street grid has resulted in many irregular intersections. There are many locations where the pedestrian walking along Sandy Boulevard must either follow the sidewalk out of direction to cross a side street or risk conflicts with turning automobiles.

Findings:

- ▶ Add pedestrian refuge islands to increase pedestrian crossing opportunities, especially between 16th and 37th Avenues.
- ▶ Extend the sidewalks along Sandy Boulevard to close gaps in the sidewalk network.



The "asphalt triangle" areas created by Sandy Boulevard's orientation to the Portland street grid creates problems for pedestrians.

Transit Stops

Analysis:

Access to the bus transit service along Sandy Boulevard is impeded by the infrequent pedestrian crossing opportunities. There are also few areas where adequate space is available for bus shelters. Bus stops are inconsistently spaced, in part due to irregular block sizes. Due to the diagonal nature of the corridor, the average block length is longer than Portland's standard 200 feet. Therefore, spacing stops every three blocks apart actually results in stops spaced more than the recommended 780 feet apart.

Most buses now pull out of traffic into a No Parking Bus Zone to meet passengers at the curb. This project investigated the opportunities to add 40'-long curb extensions at bus stops on Sandy Boulevard. Such curb extensions provide a safe and comfortable space for transit riders, better access for disabled riders, safer crossings for pedestrians, and may provide additional on-street parking.

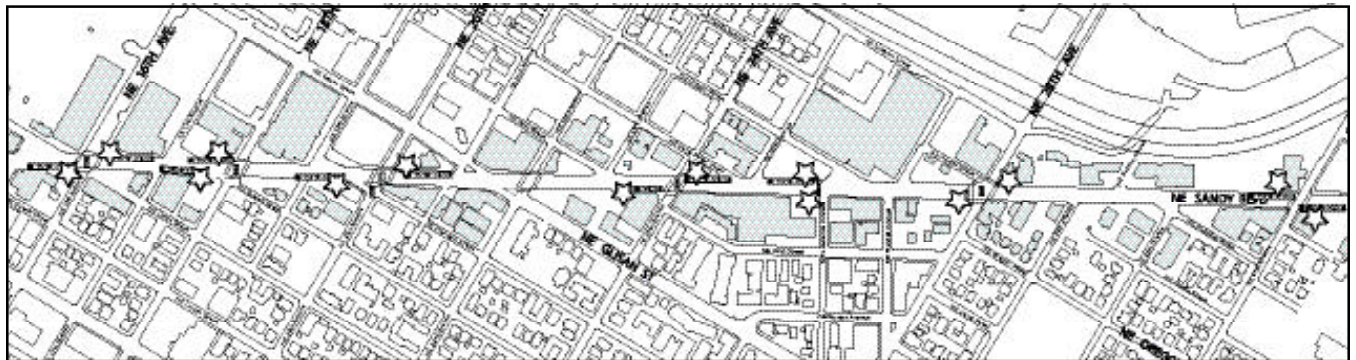
While individual delay to drivers created by a bus stopped in the travel lane at a curb extension may appear to be excessive, the delay experienced by all drivers on the Sandy Corridor is actually quite different. An analysis completed by City traffic engineers showed that six buses per hour, each stopping at four stops along a one-mile corridor, has a negligible increase in delay for motorists. This analysis assumed a four-lane street section, such as Sandy Boulevard. With two lanes in each direction, vehicles have the opportunity to move into the adjacent lane around a bus that is stopped, thus limiting delay.

In addition to providing more space for transit amenities, curb extensions actually increase on-street parking. Curb extensions require approximately 40-50 feet of curb line, which equates to two to three parking spaces. Bus zones require approximately 85–100 feet of curb space to allow for buses to maneuver into and out of the zone; this equates to four to five parking spaces.

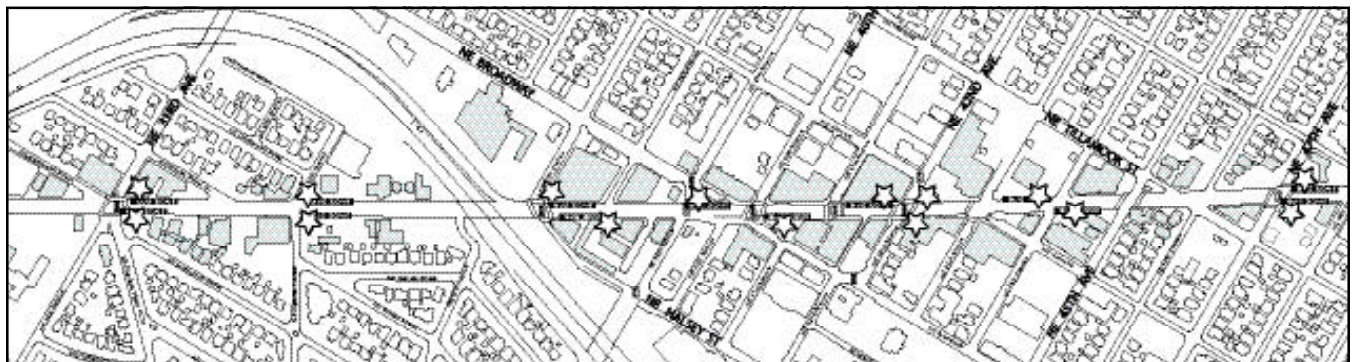
Findings:

- ▶ Generally, bus stops along Sandy Boulevard should not be moved farther than two blocks apart.
- ▶ Look for opportunities to move bus stops to the far side of a signalized intersection to improve efficiency.
- ▶ Coordinate the bus stops with new and improved pedestrian crossings.
- ▶ Add “transit curb extensions” that provide space for passenger amenities while allowing the bus to stop in the travel lane.
- ▶ Look for opportunities to improve the pedestrian environment in a way that also improves the waiting environment for transit customers.



Existing bus stops and bus zones on Sandy Boulevard, NE 14th - 31st Avenues.



Existing bus stops and bus zones on Sandy Boulevard, NE 31st - 47th Avenues.



KEY

-  Existing Bus Stops
-  Existing No Parking Bus Zones

Note: Bus zones are shown symbolically, not to scale.

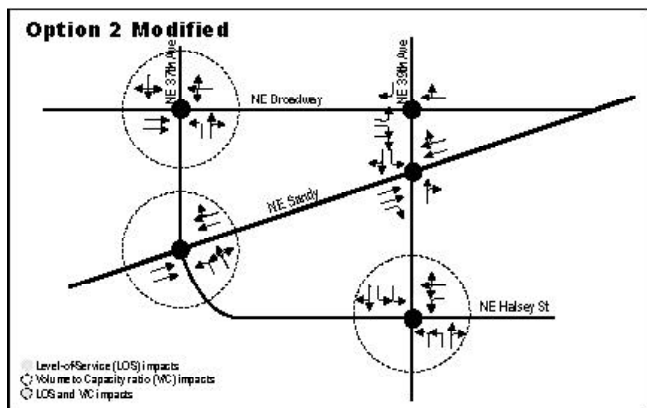
Hollywood Circulation

Analysis:

Although the Hollywood District is a regionally designated Town Center and Station Community, and a thriving neighborhood retail area, its transportation network is significantly affected by the proximity of the I-84 on-ramps. In a focused effort to find alternative solutions to the local circulation issues, the project team investigated several potential changes to the area's circulation patterns.

Reverse Circulation Alternative

The primary goal of the "reverse circulation" concept was to make wayfinding in the Hollywood District more intuitive. Key aspects of this concept included allowing two-way traffic on NE 39th Avenue, NE Halsey Street, NE Broadway Street (both north and south of Sandy Boulevard).



One of the many Reverse Circulation Alternative options investigated by the project team.

However, the analysis of this concept showed that, though it could accommodate current levels of traffic, it was not a feasible improvements for this project. The City would have to widen NE Halsey Street west of NE 39th Avenue to accommodate new sidewalks and three lanes of traffic. This widening would impact the property to the north, and may require reconstruction of the retaining wall on the south side. As a result, the scope and cost of these improvements would be outside the scope, budget and schedule of this project.

Roundabout Alternative

The team investigated a roundabout design for the intersection of NE 39th Avenue/NE Broadway Street/Sandy Boulevard. However, there is insufficient space in the public right-of-way for a roundabout that would accommodate the amount of traffic that currently moves through this intersection. As a result, the scope and cost of these improvements would be outside the scope, budget and schedule of this project.

Left Turn Alternative

Circulation within the core of Hollywood's commercial district is hampered by a driver's inability to turn left from Sandy Boulevard at most locations. Currently, left turns are only allowed at unsignalized intersections (NE 38th, 44th, 45th, and 46th Avenues) and at the signalized intersections of NE 40th and 47th Avenues. The project team investigated the physical and operational impacts of adding protected left turn pockets at NE 40th, 42nd, 43rd, 44th, and 47th Avenues.

Adding left turn pockets and a protected left turn phase is feasible at many locations, but at each intersection there are impacts. Allowing left turns at NE 40th Avenue would degrade the traffic operations at the intersection slightly, and would require closing A-Boy's northern driveway. At NE 42nd Avenue, adding a left turn would result in operating conditions at or near capacity (in 2005), loss of on-street parking, and sidewalk impacts. At NE 43rd Avenue, there would be impacts to on-street parking and the sidewalk on the north side. A left-turn pocket at NE 44th Avenue would require the addition of a new traffic signal at a location where traffic volumes do not warrant the signal. This alternative would significantly reduce parking on both sides of Sandy Boulevard.

Findings:

- ▶ A protected left turn lane could be added at either NE 42nd or 43rd Avenue to improve vehicular access to development north and south of Sandy Boulevard. Due to the space required by the left turn pocket, a left turn cannot be added at both intersections.
- ▶ Develop a wayfinding system of signage to facilitate bicycle, pedestrian, and auto access in the Hollywood District.

Stormwater Management

Analysis:

The City of Portland's Bureau of Environmental Services (BES) identified the Sandy Resurfacing Project as an opportunity to develop water detention and water quality swales to treat stormwater runoff. These will reduce the volume of runoff that is collected by the city's combined sewer overflow (CSO) system. Applying a "Green Street" concept to Sandy Boulevard meant developing a holistic view of how stormwater runoff is managed in the right-of-way. The primary treatment mechanisms at these sites will likely be infiltration, evapotranspiration, and sedimentation, while some treatment might also occur through nutrient uptake by vegetation.

Because Sandy Boulevard travels at an angle perpendicular to the street grid system the result is many triangular intersections with large areas of undefined street-level pavement. The project will include the realignment of numerous intersections along Sandy Boulevard. The resulting intersection configurations require less spatial area than the existing configurations. This opens up a significant amount of space for swales at some locations. As a result, the triangular spaces will become points of green along Sandy Boulevard that mark neighborhood and community gateways.

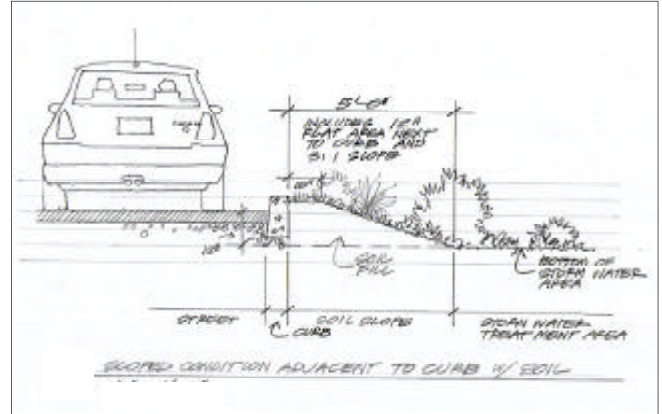
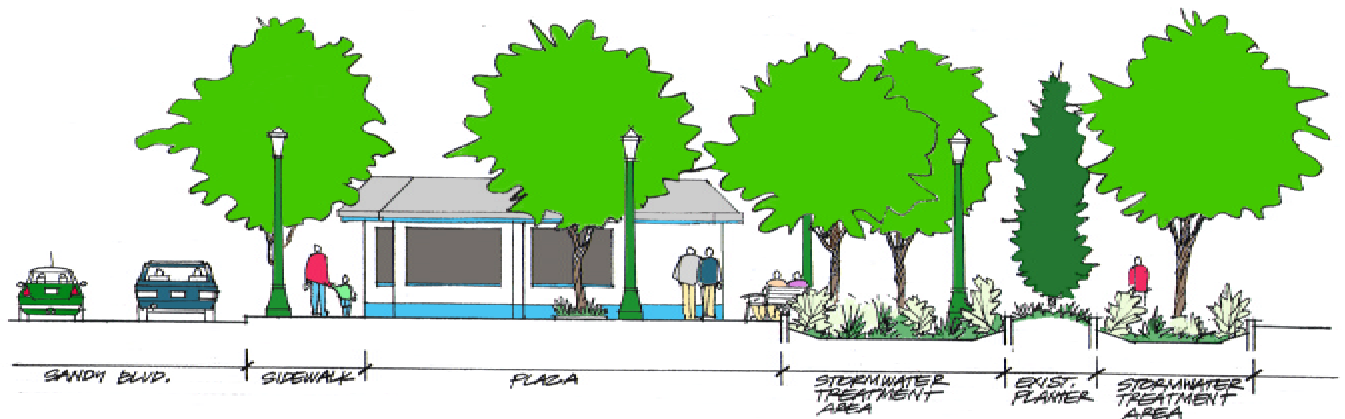


Illustration of a typical section of water detention and water quality swales proposed for several sites along Sandy Boulevard.

Findings:

- ▶ Each water detention and water quality swales will be located behind a curb, and will most likely take the shape of a shallow basin. It is expected that stormwater will flow along the curb and gutter of the contributing street until it reaches an opening through the curb that passes into the basin.
- ▶ Of the eight sites that met BES' selection criteria, all but the space in front of Everyday Music (at 19th Avenue) appear to have sufficient capacity to treat a significant portion of the required storm volume.



Kelley Plaza, between NE 42nd and 43rd Avenues, can be improved as a public place with landscaping that accommodates stormwater runoff.

Street Trees

Analysis:

The quality of the existing street trees along Sandy Boulevard is part of what establishes the character of the street. The western reach from 16th Avenue to 37th Avenue contains small trees. Within the Hollywood area, many of the trees are large and healthy. While some frame views and architecture, others conflict with existing buildings, signage and businesses.

The project's street tree planting concept celebrates species diversity with a variety of tree types that mark gateways, relate to adjacent neighborhoods, and generally frame the architecture and landmarks of the Sandy Boulevard corridor.

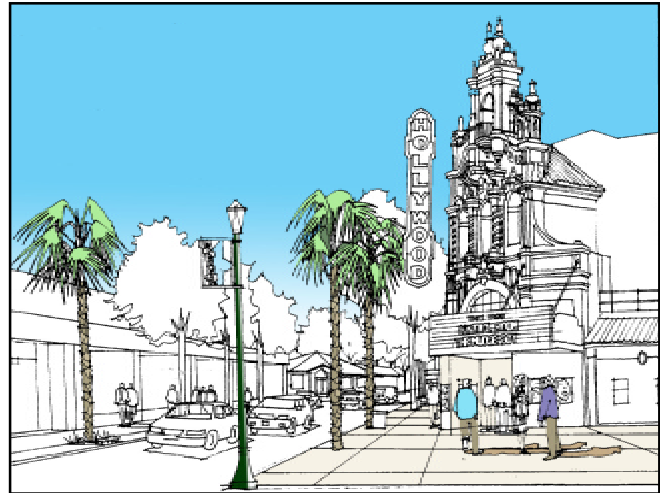
Street trees also contribute to the green street concept by absorbing stormwater, slowing the rate of runoff, and shading their surroundings. Overall, they create an image of a green corridor that links downtown Portland and the Willamette River to the Hollywood District.

Findings:

- ▶ Plant a variety of tree species in the corridor, and select trees with strong character or special qualities to emphasize nodes, gateways, and other special places.
- ▶ Several trees are recommended to be removed at various locations due to their poor condition and/or conflicts with signage and overhead wires.
- ▶ Many of the existing columnar maples are growing into overhead power and communication wires. Each situation needs to be evaluated with Urban Forestry to determine if these trees should be replaced with a more appropriate species.
- ▶ Trees in front of the historic Hollywood Theater and some other buildings are poorly located causing damage or obstructing views to the building and/or signage. The City will work with the property owners to replace the existing trees with ones more suited to the location.
- ▶ All existing trees in the improvement areas will be reviewed with Urban Forestry during the engineering phase.



Different species of trees can be used in the corridor to highlight nodes and gateways.



New trees could replace the existing trees, which cause damage to the marquee on the Hollywood Theater.

RECOMMENDATIONS

After a year of analyzing the opportunities, constraints, and potential solutions for Sandy Boulevard, project staff and the CAC developed a list of recommended improvements to improve the street for all modes of transportation and meet the goals of the Resurfacing and Streetscape Project. Together, these specific improvements form the long term plan for Sandy Boulevard. However, the current funding for the Resurfacing and Streetscape Project is limited and does not cover the entire list of projects, so the project staff and the CAC had to prioritize the projects for implementation.

Core Improvements

Some improvements in the plan were identified as being truly the “core” of the project, and were given the first priority for funding. These improvements address bicycle, pedestrian and vehicular safety, universal accessibility, and transit improvements, and represent the City of Portland’s highest priorities. The Core Improvements include:

- Upgrade curb ramps to meet ADA.
- Grind down existing asphalt and re-pave street.
- Construct transit curb extensions at bus stops.
- Address safety concerns by modifying turning movements or changing traffic signals.
- Reduce the amount of pervious surface in the corridor by developing some stormwater management areas.
- Construct pedestrian refuge islands to increase the number and quality of pedestrian crossings.
- Add bicycle parking facilities throughout the corridor.
- Construct below-ground signal work at the Hazard Elimination Project locations.

Beyond this list of Core Improvements, the CAC and public open house attendees set priorities for implementation of the remaining recommended projects. The recommended priorities will be constructed as part of the Resurfacing and Streetscape Project to the extent that the project budget allows.

Recommended Project Improvements

As a result of this planning process, the CAC recommended that the City make improvements throughout the corridor. Improvements will address the goals, objectives, and challenges of the corridor in the following ways.

Goal: Enhance Pedestrian Safety and Convenience

Extend Sidewalks along Sandy Boulevard to fill the gaps created by the street’s skewed relationship with the gridded sidestreets at NE 15th, 18th, 19th, 21st, 22nd, and 33rd Avenues.

Construct **pedestrian refuge islands** at new crossings at NE Lawrence, 31st, 35th, 37th and 45th Avenues.

Construct **curb extensions** to reduce pedestrian crossing distances at NE 16th, 20th, 24th, 35th Avenues and NE Halsey and Broadway Streets.

Consolidate driveways that are excessive or unused at several locations to improve pedestrian accessibility along Sandy Boulevard.

Goal: Provide Good Connections Between Neighborhoods

Add **ornamental streetlights** at intersections of significance.

Improve physical connectivity by adding five new **pedestrian crossing locations** (at NE Lawrence, 31st, 35th, 37th and 45th Avenues), one **new traffic signal** (at NE 22nd Avenue), one **new left turn onto Sandy Boulevard** (from NE 20th Avenue) and four **new protected left turns from Sandy Boulevard** (at NE 22nd, 33rd, 43rd, and 47th Avenues).

Goal: Improve Drivers' Safety and Convenience

Add **new signage** on NE 39th Avenue south of Sandy Boulevard and on NE 37th north of the corridor to clarify wayfinding and lane assignments for vehicles accessing I-84.

Consolidate driveways that are excessive or unused at several locations to reduce potential conflicts between through-traffic and vehicles and pedestrians accessing parking lots.

Prohibit left turns from eastbound Sandy Boulevard to westbound I-84 to alleviate the uncertainty and safety concerns at this location.

Provide **new protected left turns** at signals to reduce drivers' need to use local streets to navigate the corridor.

Simplify the NE 20th Avenue intersection with Sandy Boulevard and NE Flanders Street to improve traffic operations.

Goal: Support Access to Business and Residential Neighborhoods

Maintain **freight access** throughout the corridor and at intersections.

Maintain or increase the number of **on-street parking spaces** in the corridor. At some locations, adding pedestrian refuge islands or left turn pockets will require parking removal.

Add **new protected left turns** to and from Sandy Boulevard to improve access to businesses on the corridor and in the Hollywood District.

Make **NE Broadway Street**, which is currently one-way between NE 37th and 39th Avenues into a **two-way street** east of NE 37th Avenue to allow vehicles on NE Broadway Street to turn north at NE 39th Avenue to access the Hollywood District destinations.

Goal: Improve Bicycle Safety and Convenience

Sign a **new bicycle connection** on NE 22nd Avenue between the existing bike lanes on NE Glisan and Irving Streets.

Add **crossing improvements**, such as signal detection of bicycles at key intersections.

Provide a significant amount of additional **bicycle parking** throughout the corridor. This should include 1-2 central covered "bike oases" in the Hollywood District.

Add a **new westbound bike lane** between NE 38th Avenue and I-84 to reduce potential conflicts between cyclists on Sandy Boulevard and vehicles accessing I-84.

Goal: Increase Safety and Convenience for Transit Users

Add new **bus-length curb extensions** on Sandy Boulevard at NE 16th, 18th, 20th, 24th, 31st, 35th, 44th, and 47th Avenues to provide space for amenities such as benches and shelters. In most cases, replacing a No Parking Bus Zone with a transit curb extension will result in an increase of on-street parking.

Adjust bus stop locations to coordinate with pedestrian improvements at NE 18th, 20th, 35th, 37th, 42nd and 45th Avenues.

Goal: Enhance Landscaping

Six **landscaped water detention and water quality swales** will be developed at NE 15th, 21st, 22nd, 33rd, 39th, and 42nd Avenues. These sites will manage runoff in a more sustainable manner while adding a green character to the street.

New street trees will be added on the blocks where the project will construct sidewalk improvements.

Damaged or **unhealthy street trees will be replaced** to the extent the budget allows.

Goal: Support the Community Identity

Streetscape elements, such as decorative streetlights at the corners and new street trees, will help soften the character of Sandy Boulevard.

Redesign the **public spaces** at NE 39th and 42nd Avenues with the community to be special landmarks and improved places.

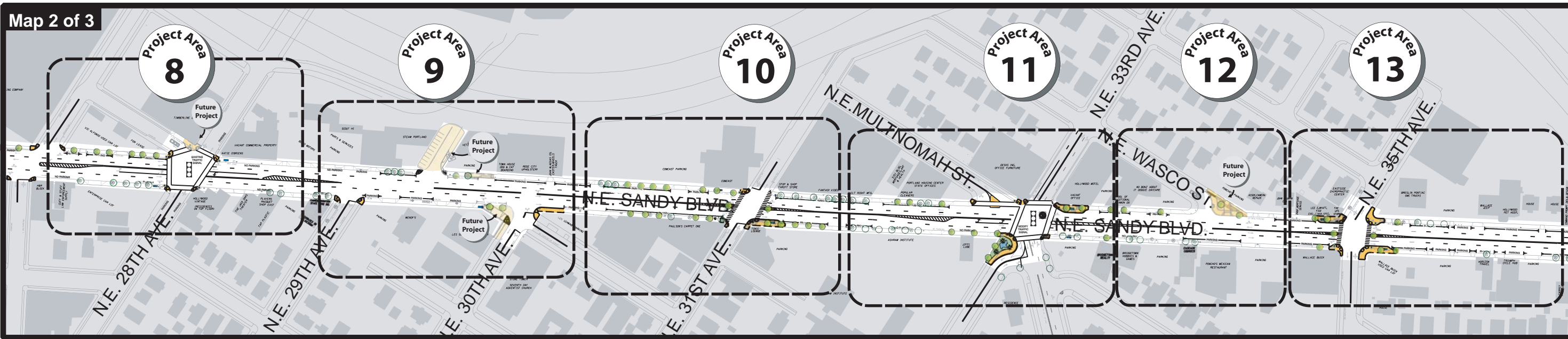
Make key improvements at **neighborhood gateways**.

Reclaim the “**triangle areas**” along Sandy Boulevard for use as stormwater sites (at NE 15th, 21st, 22nd, 33rd, 39th, and 42nd Avenues), enhanced transit stops (at NE 18th, 20th,), and pedestrian crossings (at NE 19th Avenue, and NE Multnomah and Broadway Streets).

Summary of Funded and Future Project Elements



On the following page, Table 1 lists the CAC’s recommended improvements by location. Projects listed in the column titled “Recommended for 2005 Funding” will be constructed by the Sandy Boulevard Resurfacing and Streetscape Project with the OTIA grant funds. Projects listed in the column titled “Recommended for Future Funding” could be implemented by public or private entities in the future. All of the recommended improvements are illustrated on the maps and project area detail sheets that follow.

The next phase of the project will develop the proposed improvements outlined in this report during preliminary and final design. City staff will continue to work with the CAC and adjacent property owners to refine the project design and plan for implementation.




Sandy Boulevard Resurfacing and Streetscape Project

Map of Planned Improvements



Lloyd Lindley, ASLA
Nevue Ngan Associates
Design Data Concepts



Not to Scale



Existing Conditions



A View from Buckman Terrace to the east.



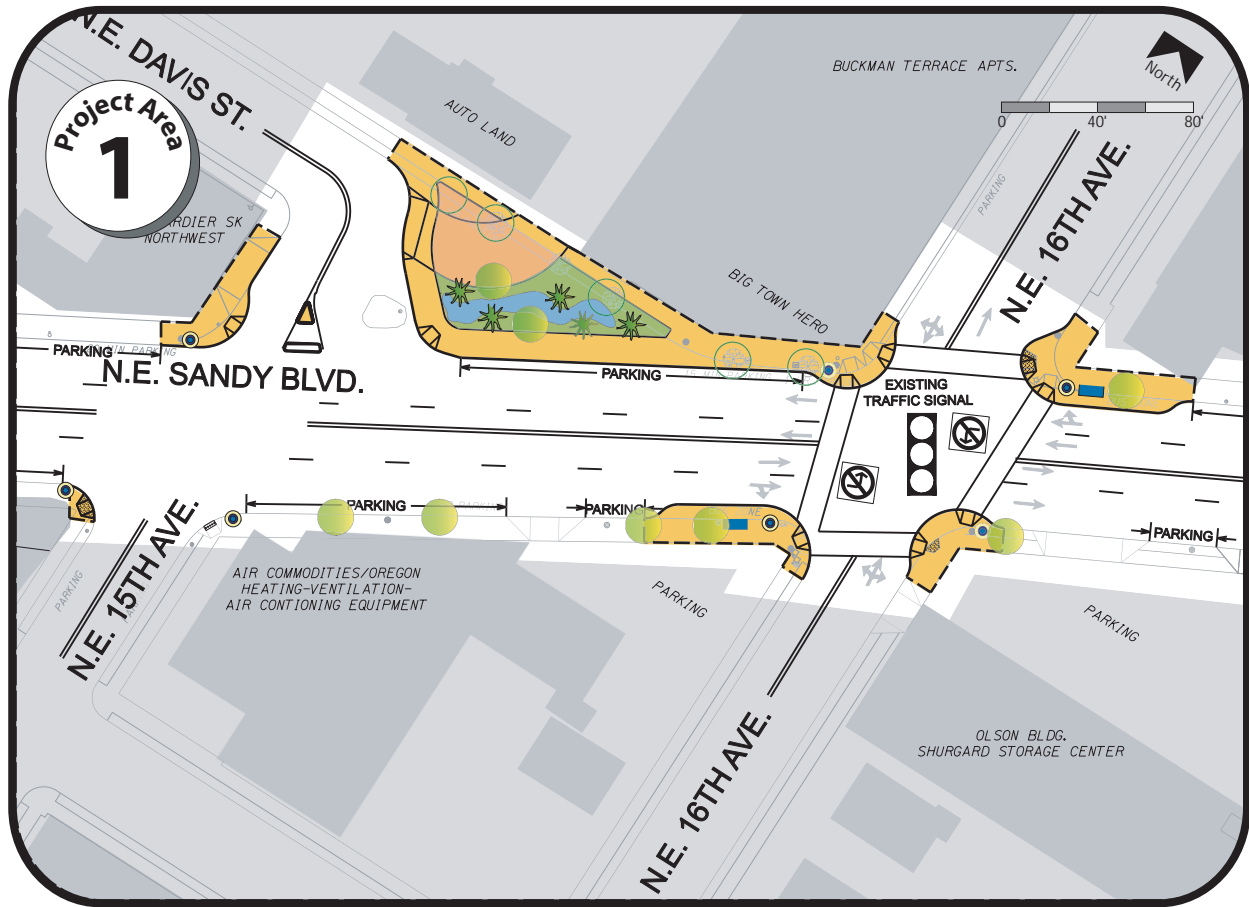
B Office building on the north side of Sandy Boulevard.



C Auto sales lot on the south side of Sandy Boulevard.



D Storage building on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

1. Reconfigure the 15th Avenue/Davis Street intersection to fill the gap in the sidewalk network and create a 90-degree intersection at Sandy Boulevard and Davis Street. A landscaped water detention and water quality swale will take the place of the excess asphalt. The driveways to the adjacent property (AutoLand) will remain open.
2. Each corner of the intersection of 16th Avenue and Sandy Boulevard will be improved with transit and pedestrian curb extensions.
3. The bus stop locations will not change.
4. The amount of on-street parking spaces will increase.



Existing Conditions



A View of the north side of Sandy Boulevard.



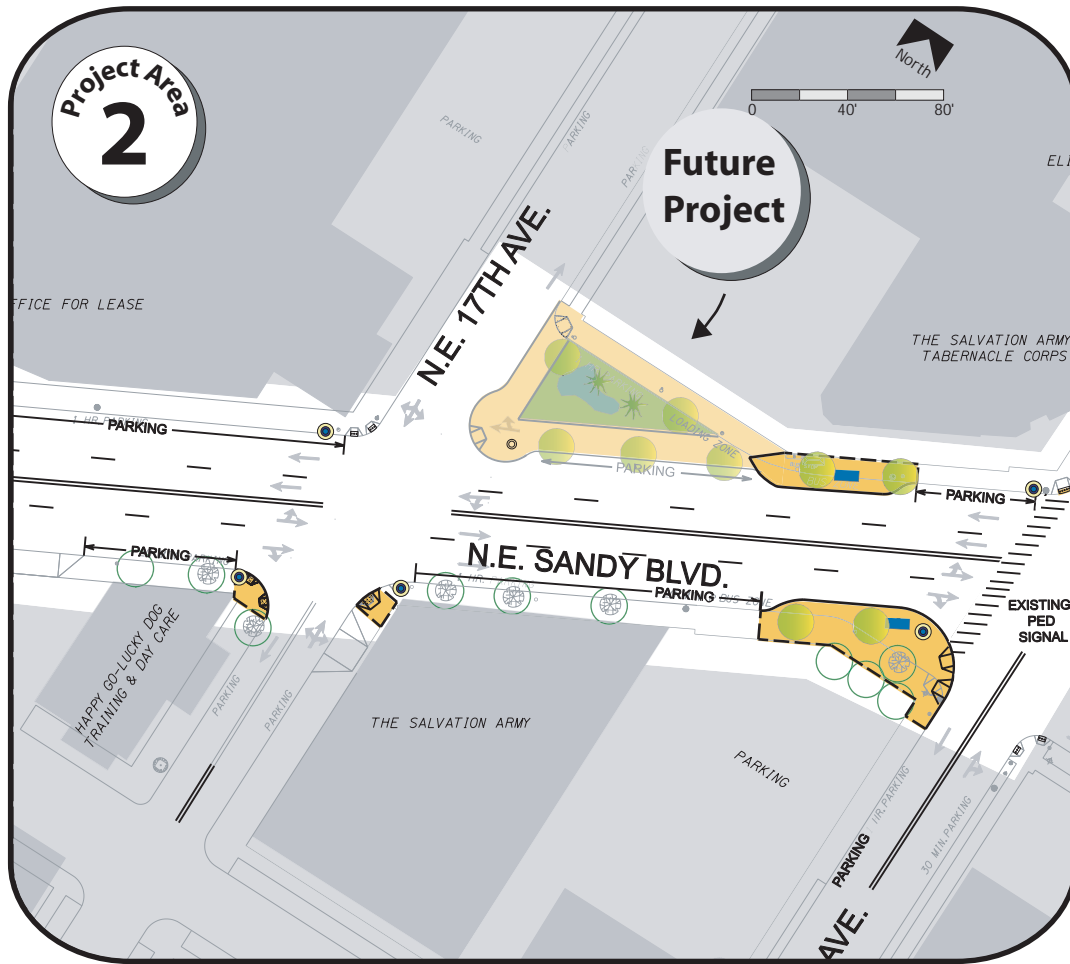
B The landmark Salvation Army Tabernacle on the north side of Sandy Boulevard.



C Building on the southwest corner of Sandy Boulevard and 17th Avenue.



D View of Salvation Army on the south side of Sandy Boulevard.



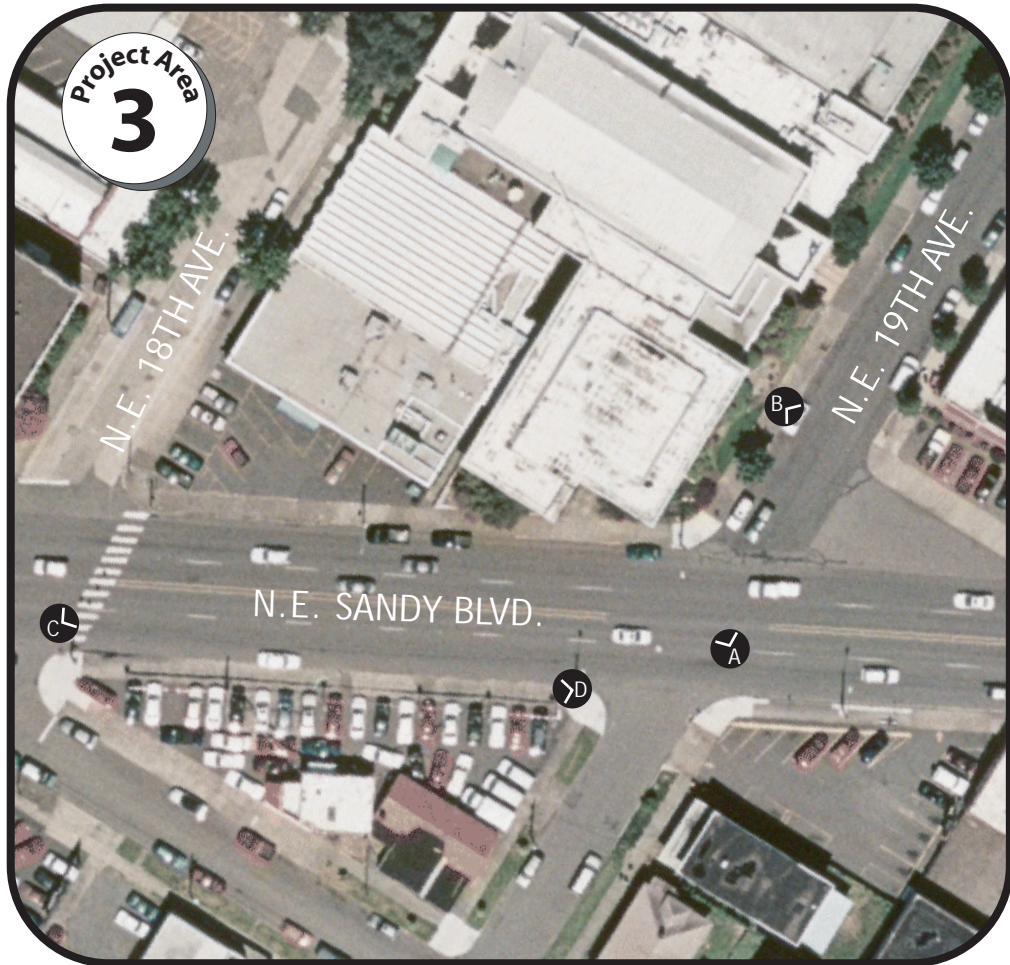
Proposed Improvements

Funded Projects

1. The southwest corner of 18th Avenue and Sandy Boulevard will have a transit curb extension that also reduces the pedestrian crossing distance. The bus stop will move 100' east to this location.
2. A transit curb extension will be built on the north side of Sandy Boulevard, at the existing bus stop location.
3. The new transit curb extensions in place of bus zones each result in additional parking spaces.

Future Projects

1. The northeast corner of Sandy Boulevard and 17th Avenue is a future opportunity to extend the sidewalk along Sandy Boulevard, creating space for a landscaped water detention and water quality swale, or other improvements.



Existing Conditions



A Office building on the north side of Sandy Boulevard.



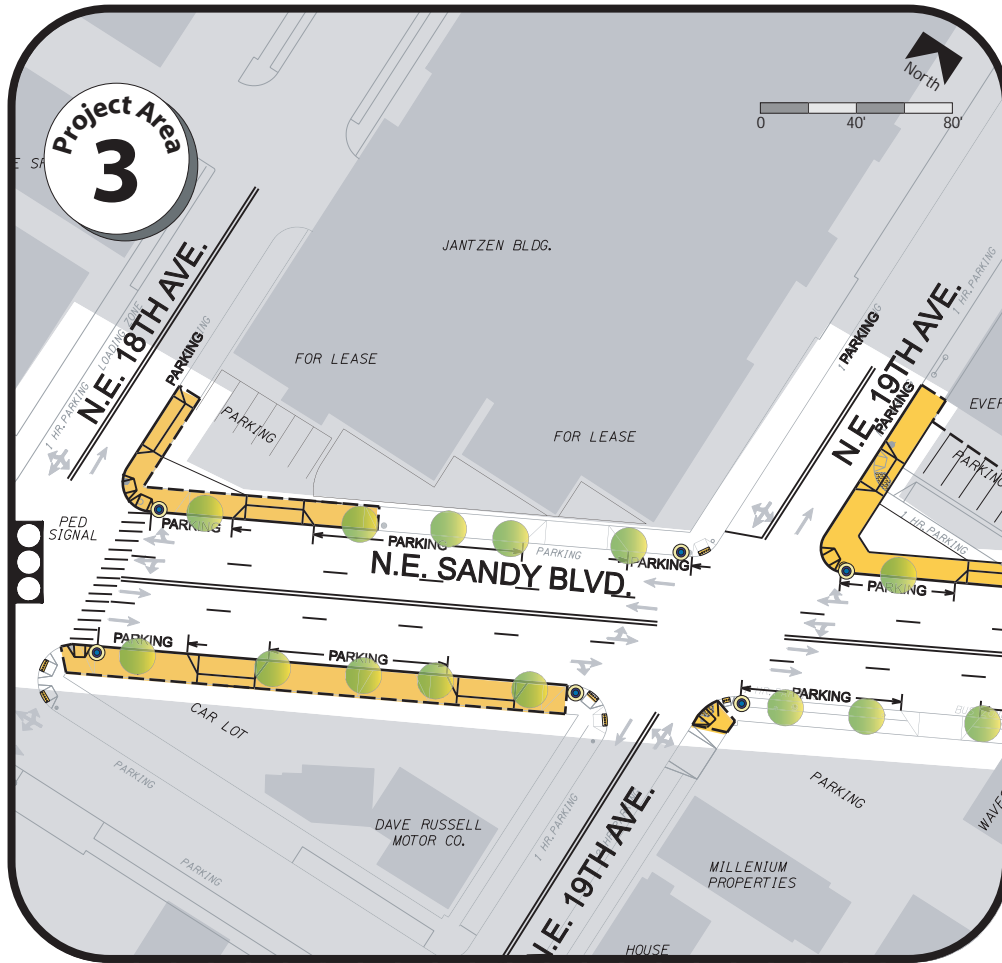
B View to the east of Everyday Music parking lot.



C View to the east from pedestrian crossing at NE 18th Avenue.



D Sidewalk on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

1. On the north side of Sandy Boulevard, the sidewalk will be extended to the west at both 18th and 19th Avenues, filling a gap in the sidewalk network and providing space for additional on-street parking. The new driveways will be located with the involvement of the property owner.

2. On the south side, the sidewalk will be reconstructed between 18th Avenue and 19th Avenue, to consolidate that block's many driveways and clearly identify the pedestrian area. As a result there will be 5 new parking spaces. The new driveways will be located with the involvement of the property owner.

3. The pedestrian-activated signal will remain.



Existing Conditions



A View toward downtown from 20th Avenue.



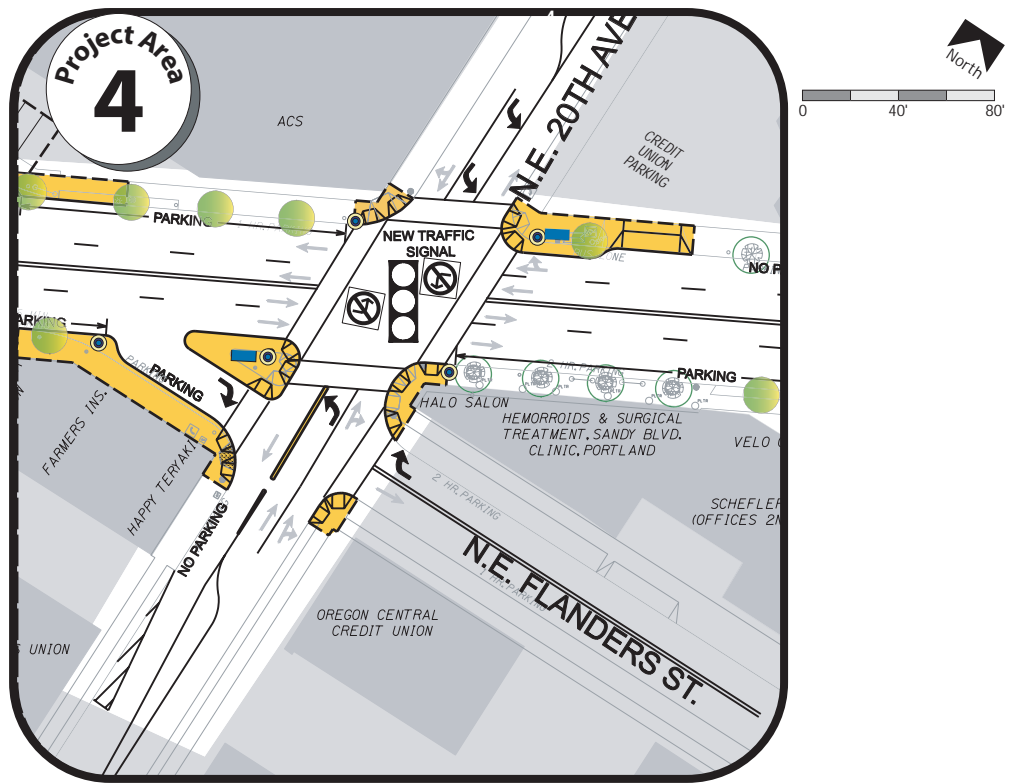
B The southwest corner of Sandy Boulevard/20th Avenue.



C A landmark building on the south side of Sandy Boulevard.



D Bus stop on the northeast corner



Proposed Improvements

Funded Projects

1. The dual intersections of Sandy Boulevard and 20th Avenue, and Flanders Street and 20th Avenue will be modified to operate as one signalized intersection.
2. The signal at Flanders St. will be removed, and Flanders Street will become right-in/right-out at 20th Avenue. A curb-type median will be installed on 20th Avenue, south of Sandy Boulevard.
3. The existing refuge island on the southwest corner will be bigger, and will accommodate a bus stop, which is currently 50 feet to the west. Parking will replace the existing bus zone.
4. Left turn pockets will be added on 20th Avenue for vehicles turning east and west-bound onto Sandy Boulevard.
5. The northeast corner will be improved with a transit curb extension.
6. The side walk on the south side of Flanders St. west of 20th Ave. will be widened.



Existing Conditions



A View of 21st Avenue/Glisan Street from Sandy Boulevard.



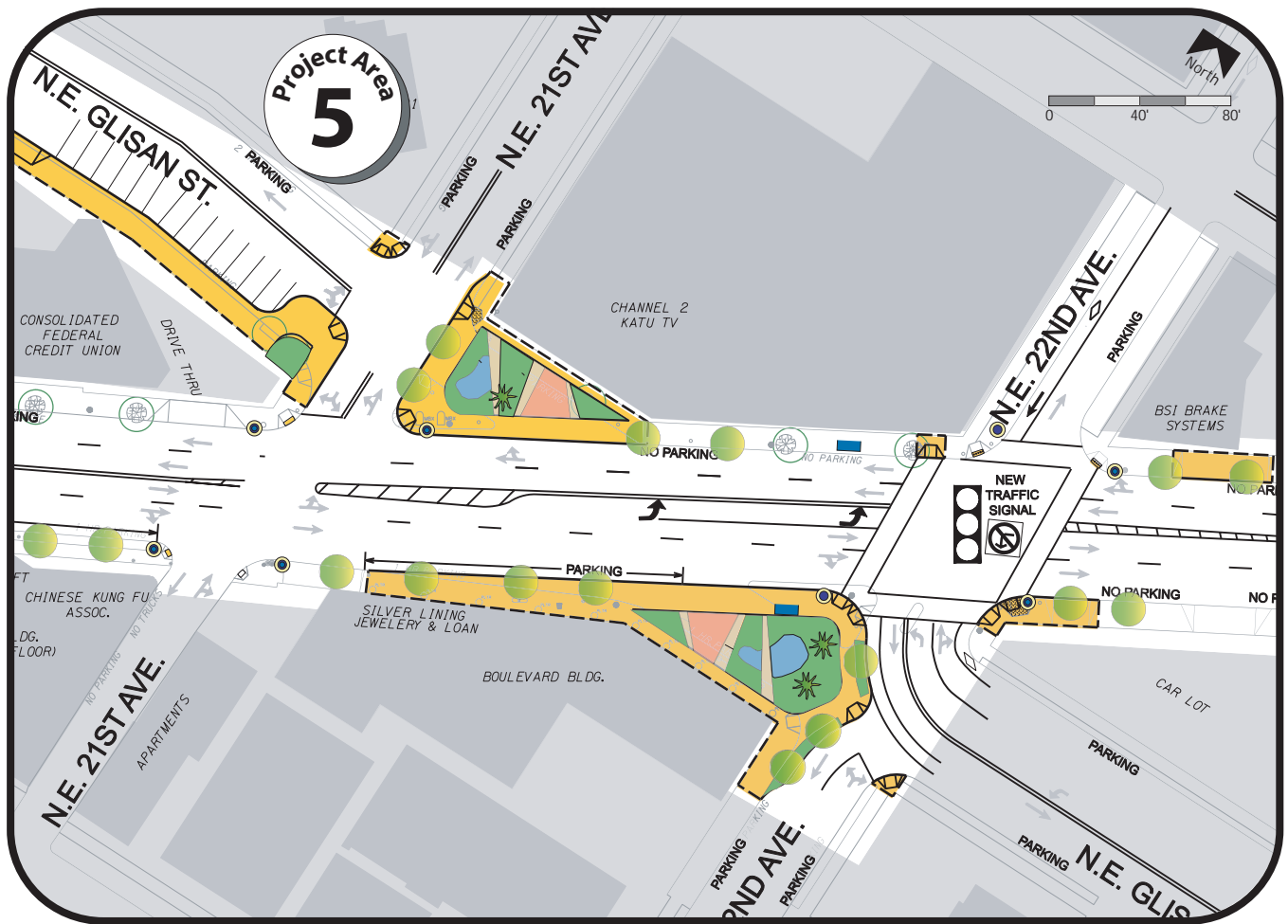
B The KATU station building on the north side of Sandy Boulevard.



C View of Sandy Boulevard looking west.



D The south side of Sandy Boulevard at 22nd Avenue.



Proposed Improvements

Funded Projects

1. On the north side of Sandy Boulevard the curb and sidewalk will be extended to the west, to shorten the pedestrian crossings.
2. Glisan Street will end at 21st Avenue, and a landscaped water detention and water quality swale will occupy this area, and on-street parking spaces will be added.
3. The intersection of 21st Avenue and Glisan Street on the north side of Sandy Boulevard will be reconfigured. Parking on Glisan Street will be re-striped to be 90-degrees to the curb.
4. A new traffic signal will be located at the intersection of Sandy Boulevard, Glisan Street, and 22nd Avenue, and left turns from Sandy Boulevard northbound to 22nd Avenue will be allowed.
5. There will be a new bicycle connection between Sandy Boulevard and Irving Street on 22nd Avenue, with a signed northbound shared lane and a contraflow bike lane.
6. On the south side of Sandy Boulevard, the sidewalk will be extended to the east to reduce the width of the intersection. A landscaped water detention and water quality swale will occupy the area, and there will be added on-street parking spaces on Sandy Boulevard.
7. Coordinate with TriMet to locate new bus stops on Sandy Boulevard at 22nd Avenue.



Existing Conditions



A Castle Rose apartments on the north side of Sandy Boulevard.



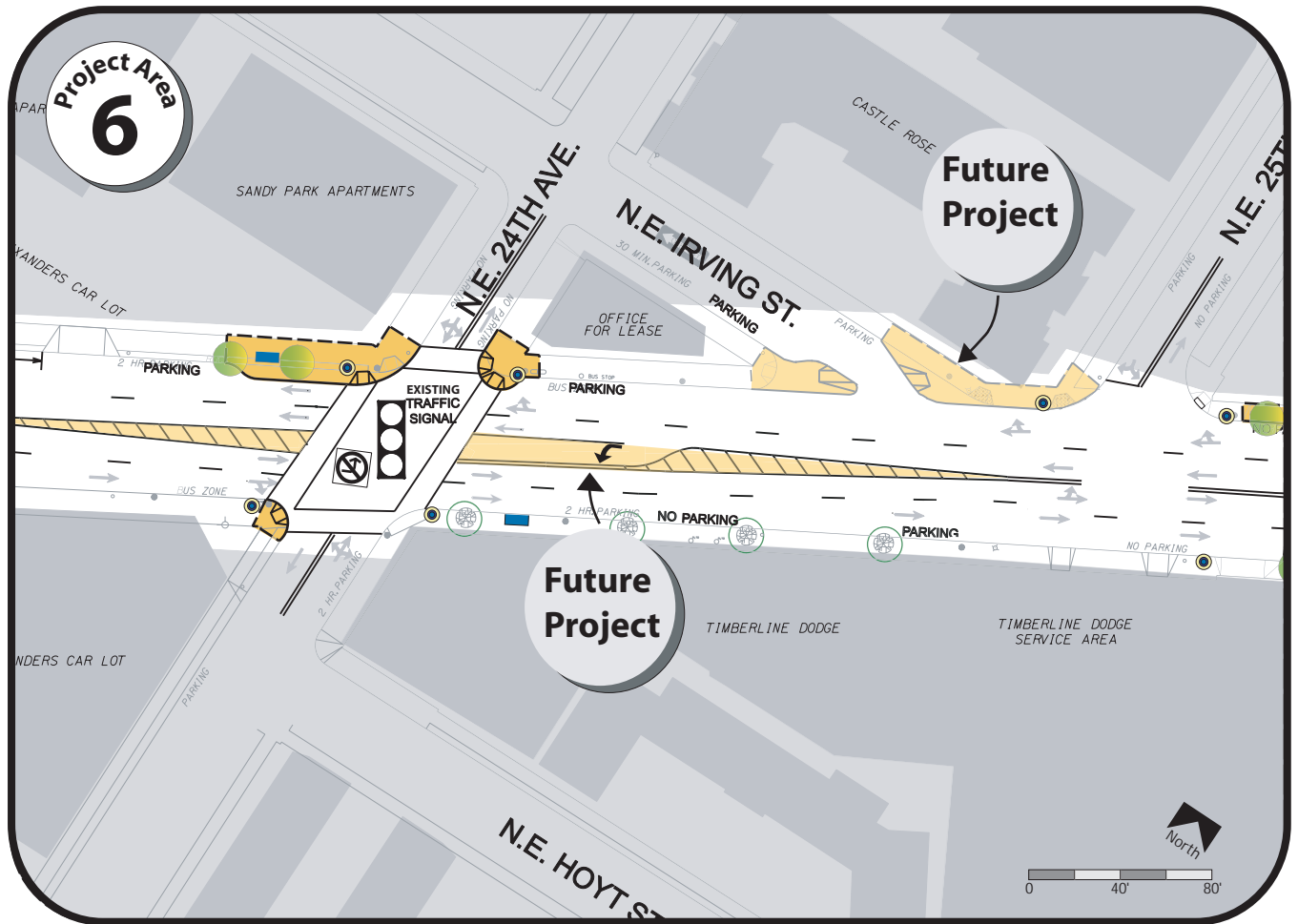
B North side of Sandy Boulevard.



C View to the east of the south side of Sandy Boulevard.



D Auto dealership on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

1. On the north side of Sandy Boulevard, the bus stop will be moved from the east side of 24th Avenue to a transit curb extension on the west side of 24th Avenue.
2. On-street parking spaces will be added to the block of Sandy Boulevard on the east side of 24th Avenue.
3. On the south side of Sandy Boulevard, the bus stop will be moved from the west side of 24th Avenue to the east side. Several parking spaces will be lost on the east side of 24th Avenue. Coordinate the final bus stop location with TriMet.

Future Projects

1. Future improvements could include a left turn pocket for a protected left turn from Sandy Boulevard to the south.
2. Curb extensions at the intersection of Sandy Boulevard and Irving Street.



Existing Conditions



A View of the north side of Sandy Boulevard.



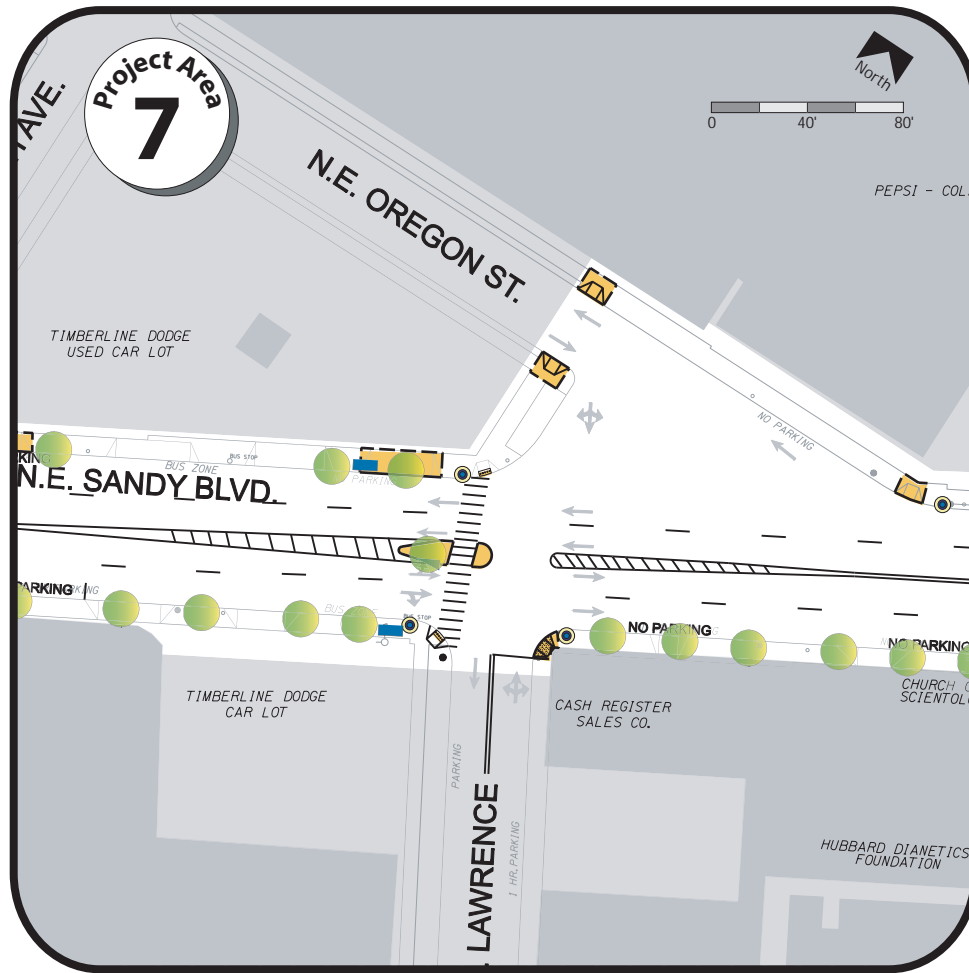
B View of Pepsi freight access on Oregon Street.



C View to the south of Lawrence Avenue.



D Auto dealership on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

1. A pedestrian refuge island will be added at the intersection of Sandy Boulevard and Lawrence Avenue. This will require removing parking spaces on the south side of Sandy Boulevard between Lawrence Ave. and Randall Street.
2. Due to the freight loading and staging requirements of the Pepsi bottling operation, no changes are planned to the sidewalk configuration on the north side of Sandy Boulevard.
3. The existing bus stop on the north side of Sandy Boulevard will be moved to the new Lawrence Avenue pedestrian crossing.



Existing Conditions



A Katie O' Brien's tavern on the northeast corner.



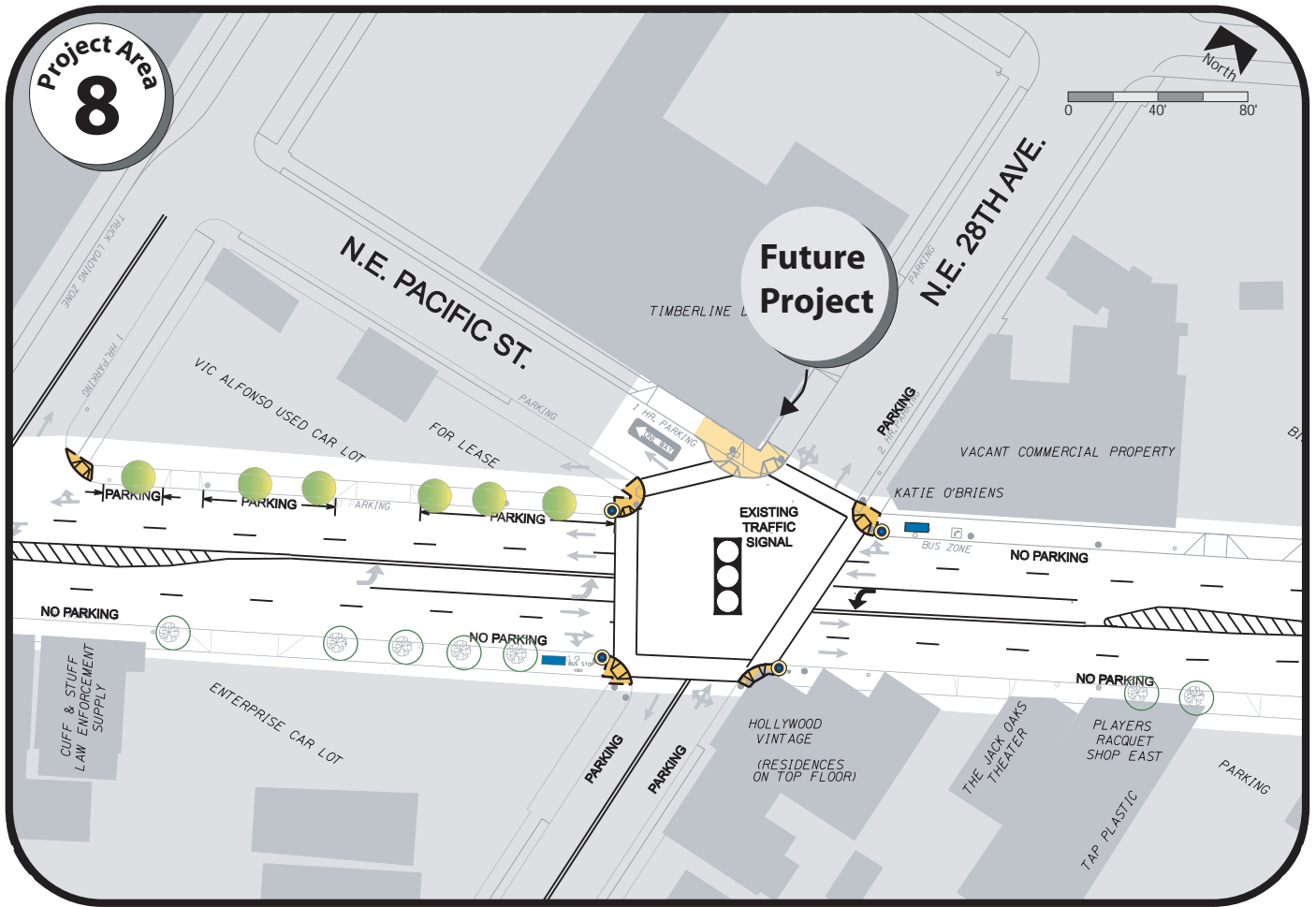
B View to the east of the north side walk



C Mixed-use building on the southeast corner.



D View of bus stop on southwest corner.



Proposed Improvements

Funded Projects

1. This phase of the project will upgrade the corner ramps and plant street trees in the vicinity.
2. During the engineering phase, investigate signal and striping changes that could improve conditions for pedestrians crossing Sandy Boulevard.

Future Projects

1. Construct a curb extension on north side of Pacific Street, west of 28th Avenue.
2. The Pacific Street right of way, which is now used as freight access for the Pepsi bottling plant, could be vacated for public or private development, as called for in the *Hollywood and Sandy Plan*.



Existing Conditions



A View of the north side of Sandy Boulevard.



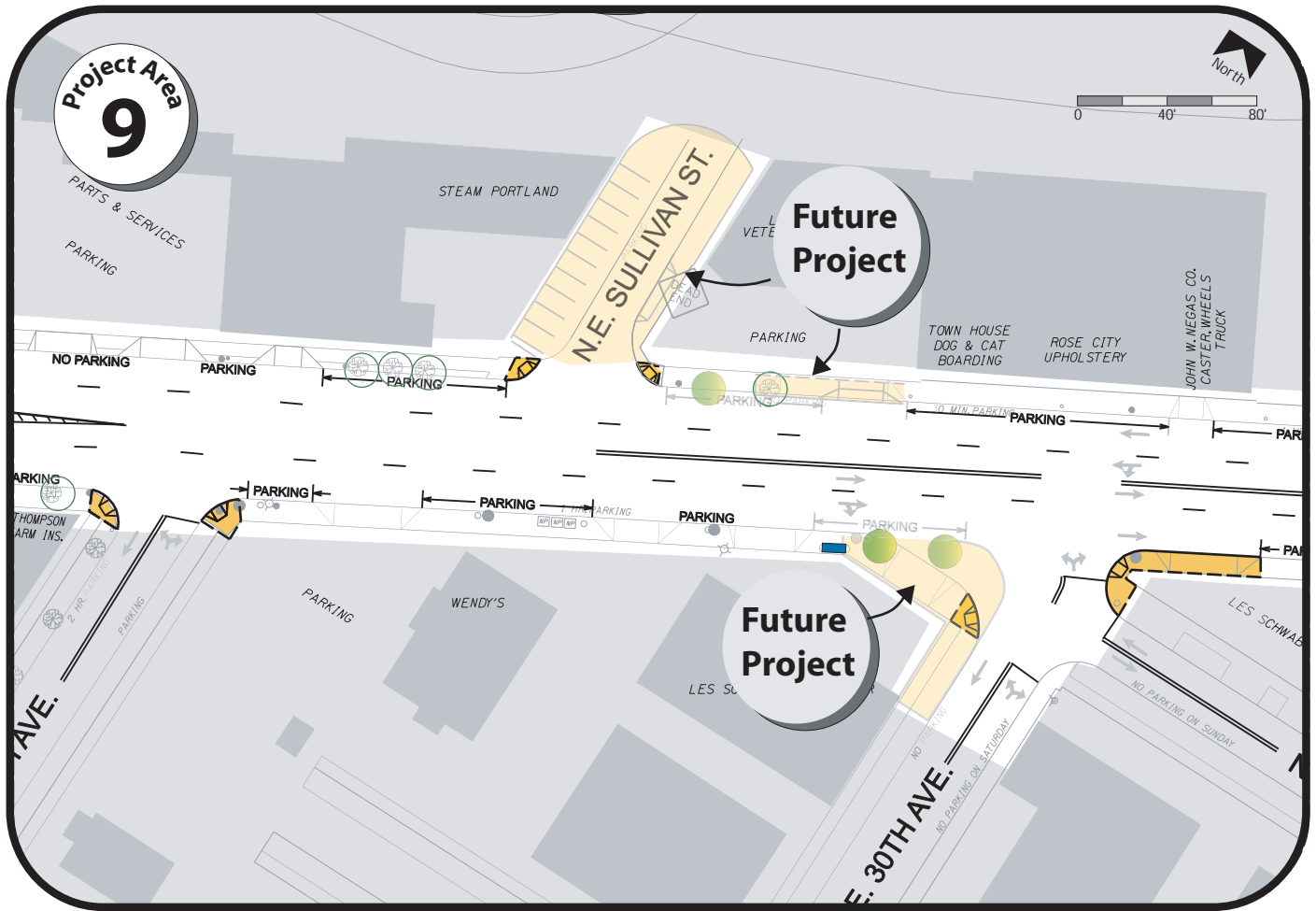
B View to the west along the north sidewalk.



C South side of Sandy Boulevard.



D Seventh Day Adventist Church at 30th Avenue & Holladay Street.



Proposed Improvements

Funded Projects

1. The current project will upgrade corner ramps to meet ADA and close one of the driveways on the east side of 30th Avenue.

Future Projects

1. A future project could upgrade the parking area in Sullivan Street, reduce the width of the driveway at Laurelhurst Vet Hospital.
2. Extend the corner on the southwest corner of Sandy Boulevard and 30th Avenue, which would add on-street parking to this block.



Existing Conditions



A The north side of Sandy Boulevard.



C Parking lot on the north side of Sandy Boulevard.



B View of the northeast block of Sandy Boulevard and 31st Avenue.



D Retail on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

1. At the intersection of Sandy Boulevard and 31st Avenue, there will be new pedestrian refuge islands.
2. A transit curb extension will be built on the southeast corner in place of the existing bus zone. This will result in additional on-street parking on this block. The bus stop locations will not change.
3. The number of on-street parking spaces will increase on the south side of Sandy Boulevard between 30th and 31st Avenues.

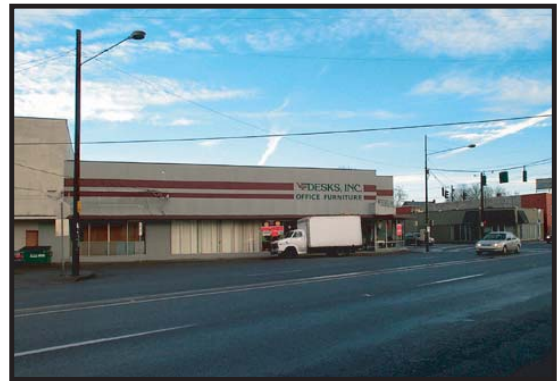
Project Area
11



Existing Conditions



A View to the west of the north side of Sandy Boulevard.



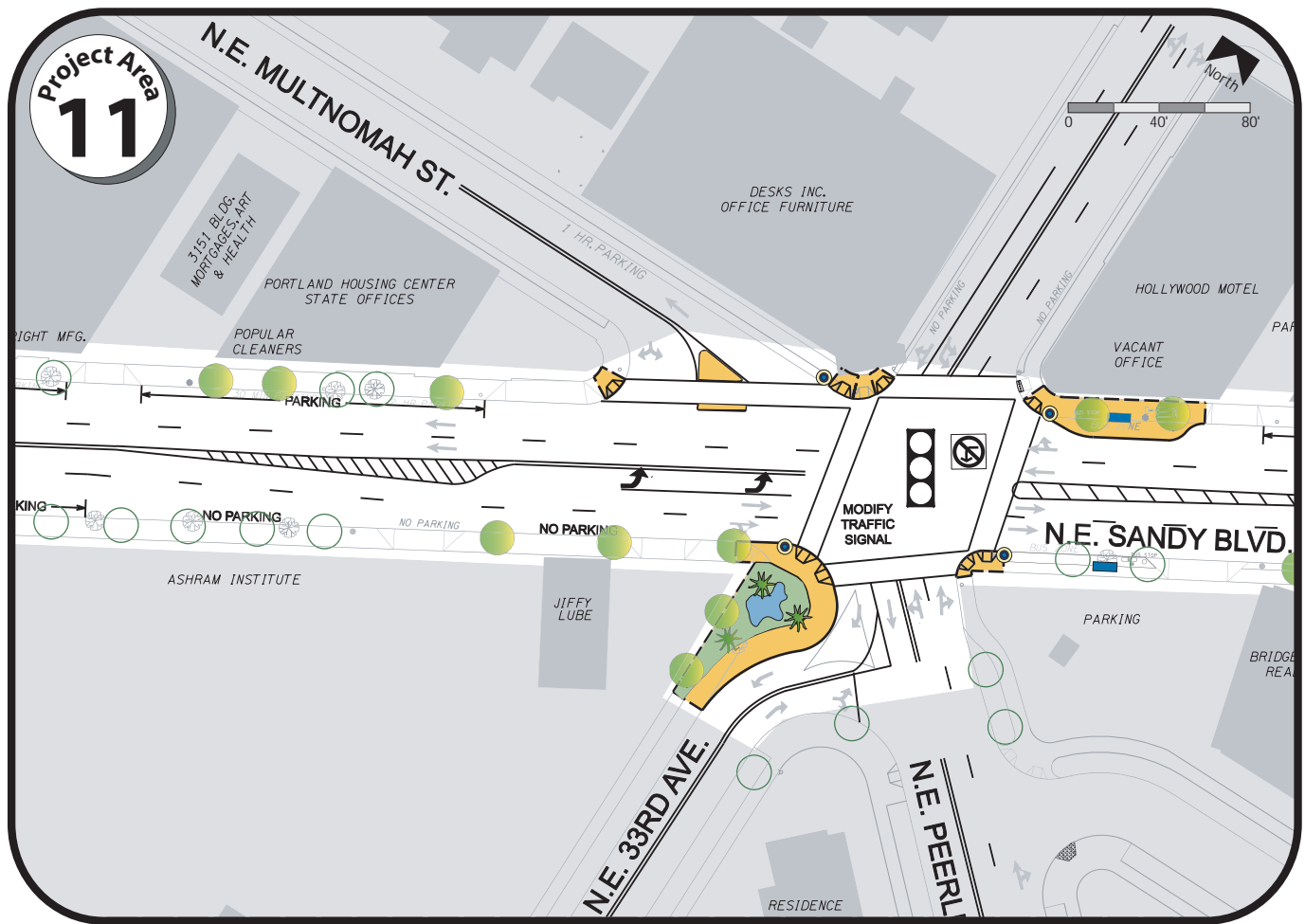
B View of the northwest corner of Sandy Boulevard and 33rd Avenue.



C View of the south side of Sandy Boulevard.



D The landmark Laurelhurst gate on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

1. Left turns will be allowed from the new left turn pocket on Sandy Boulevard northbound to 33rd Avenue.
2. On the north side of Sandy Boulevard, a refuge island will be built at the intersection of Multnomah Street and Sandy Boulevard.
3. A transit curb extension will be built on the northeast corner of Sandy Boulevard and 33rd Avenue.
4. On the south side of Sandy Boulevard the intersection of 33rd Avenue and Peerless Street will be reconfigured to reduce the width of the pedestrian crossing, and remove the south leg of 33rd Avenue from the intersection.
5. A landscaped stormwater management site will occupy the area west of 33rd Avenue.
6. Adding the left turn pocket will require removal of several on-street parking spaces on the west side of 33rd Avenue.



Existing Conditions



A View of the north side of Sandy Boulevard.



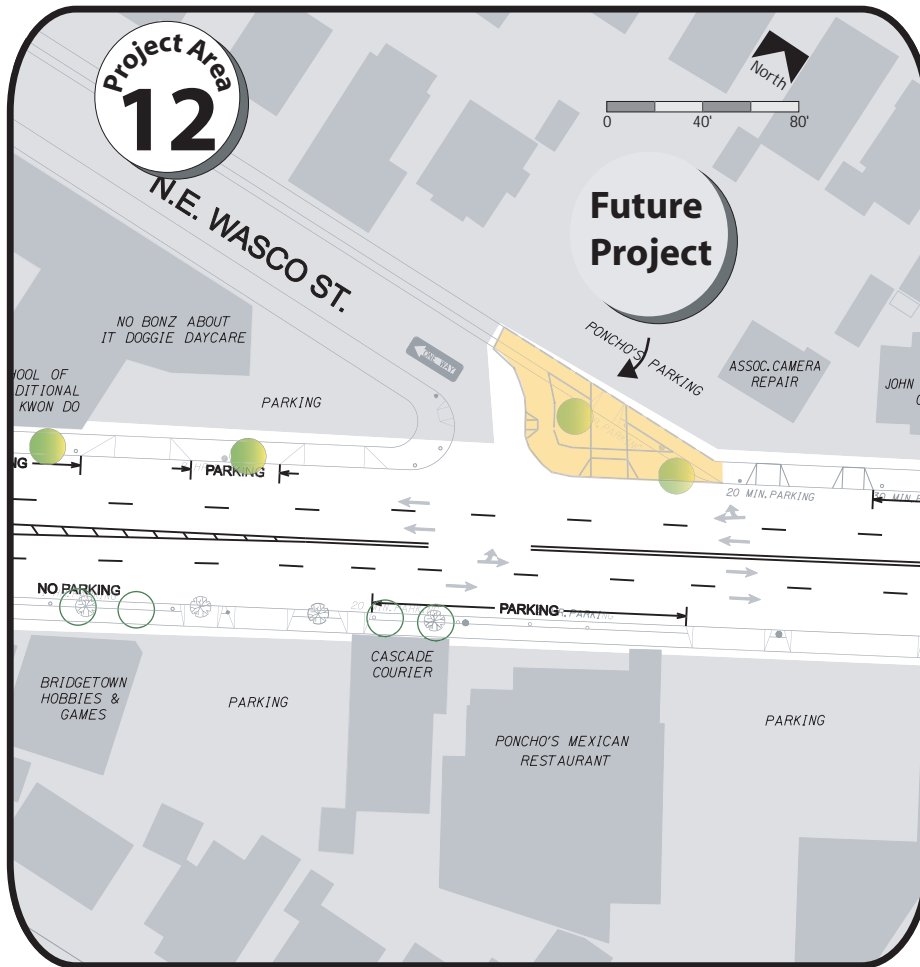
B North side of Sandy Boulevard.



C South side of Sandy Boulevard.



D View to the east of the south side of Sandy Boulevard.



Proposed Improvements

Future Projects

1. At the intersection of Wasco Street and Sandy Boulevard, a future project could construct a curb extension that reduces the throat of the one-way street. Such an extension would accommodate a driveway to the adjacent property.



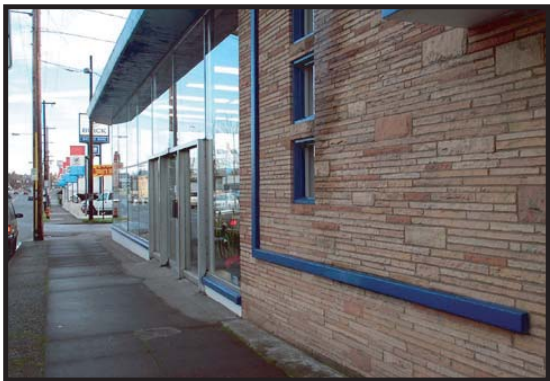
Existing Conditions



A The northwest corner of Sandy Boulevard and 35th Avenue.



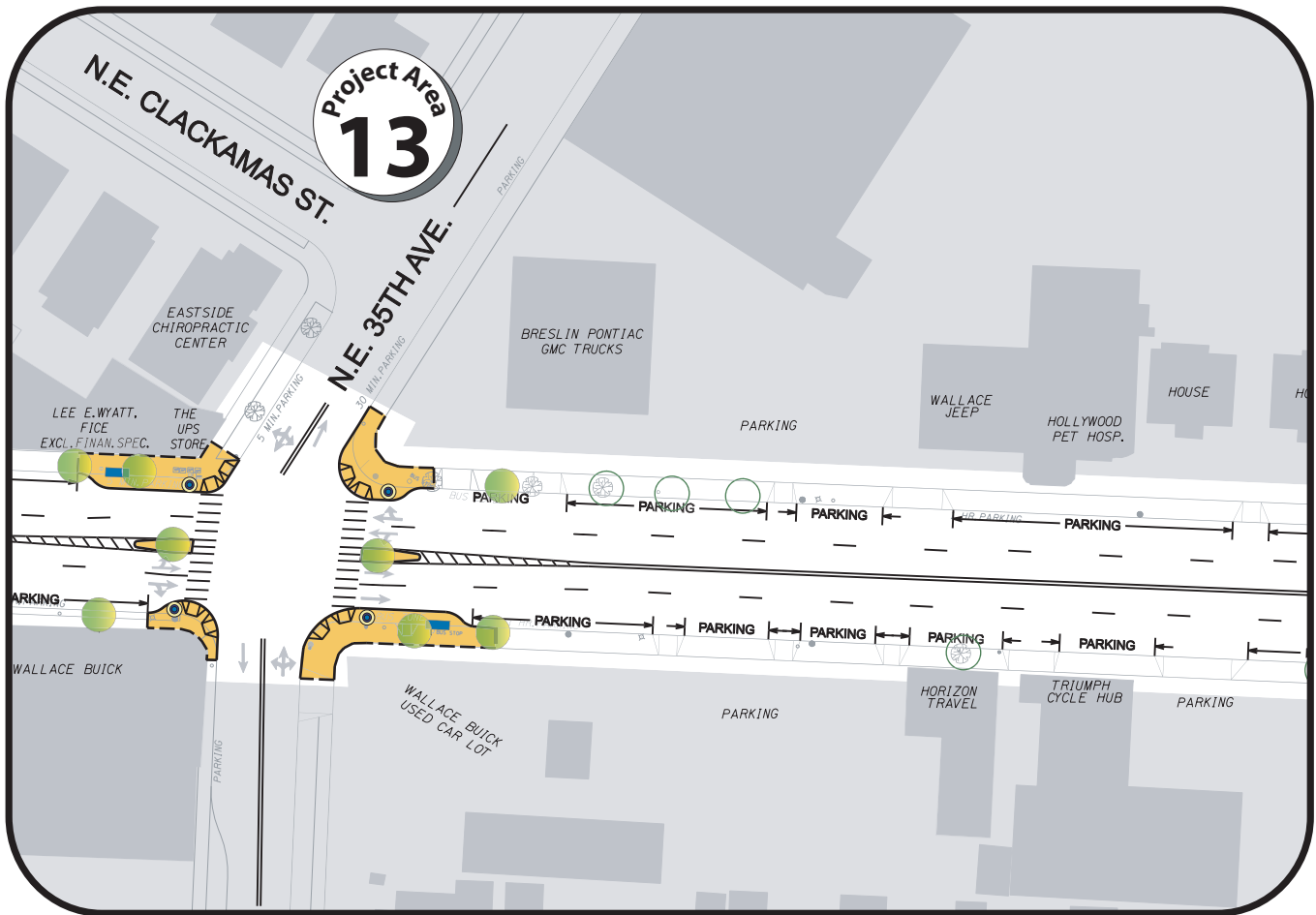
B Auto dealership on the north side of Sandy Boulevard.



C View to the east of south sidewalk.



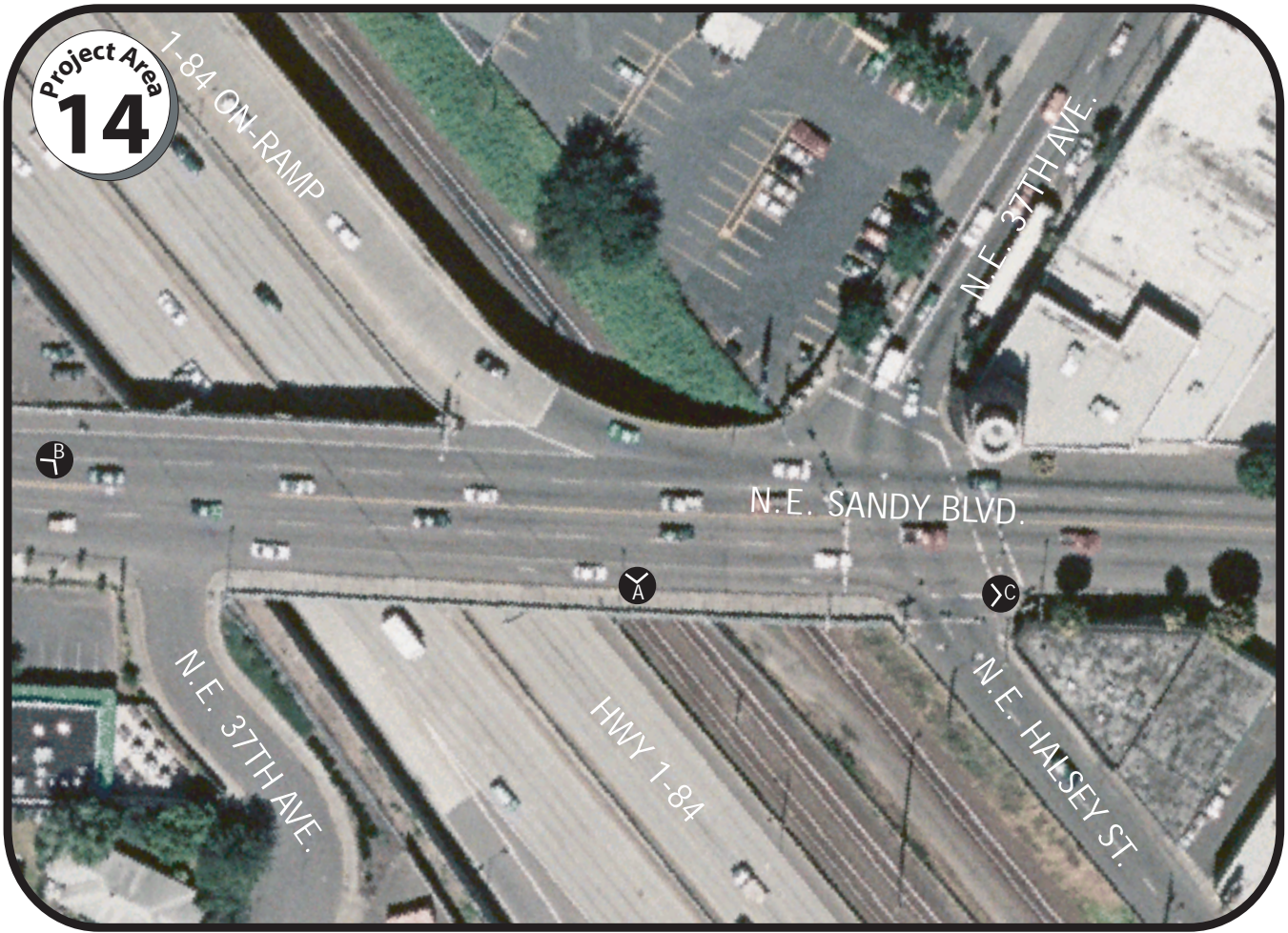
D View of south sidewalk to the east of 35th Avenue.



Proposed Improvements

Funded Projects

1. At the unsignalized intersection of Sandy Boulevard and 35th Avenue, there will be new pedestrian refuge islands.
2. Transit curb extensions will be built on the northwest and southeast corners. On the north side of Sandy Boulevard, the bus stop will be moved from the east side of 35th Avenue to the west.
3. A few on-street parking spaces will be lost on each side of Sandy Boulevard on the west side of 35th Avenue.



Existing Conditions



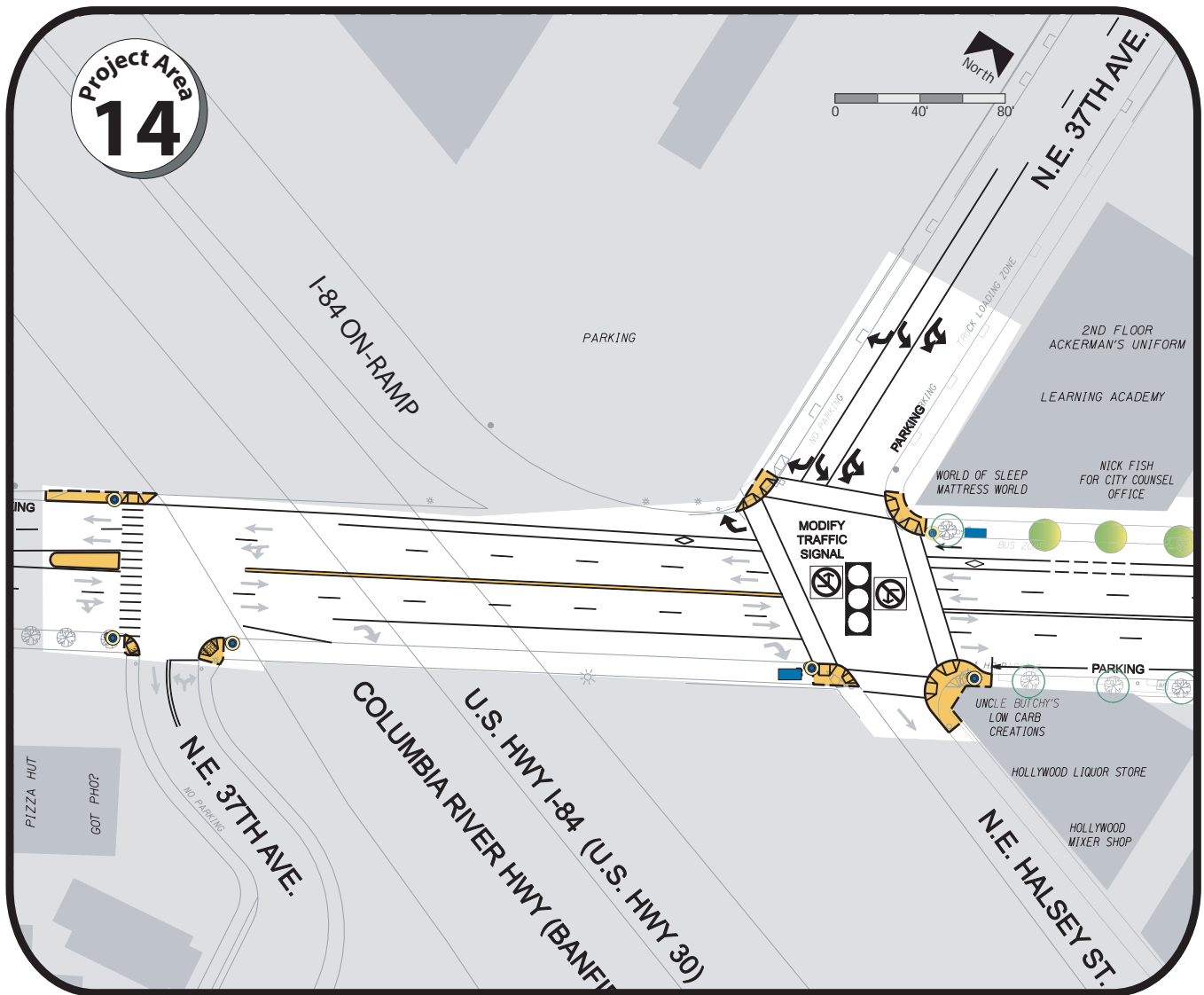
A View of the north side of Sandy Boulevard.



B Retail building on the south side of Sandy Boulevard.



C View to the west of sidewalk on the south side of Sandy Boulevard.

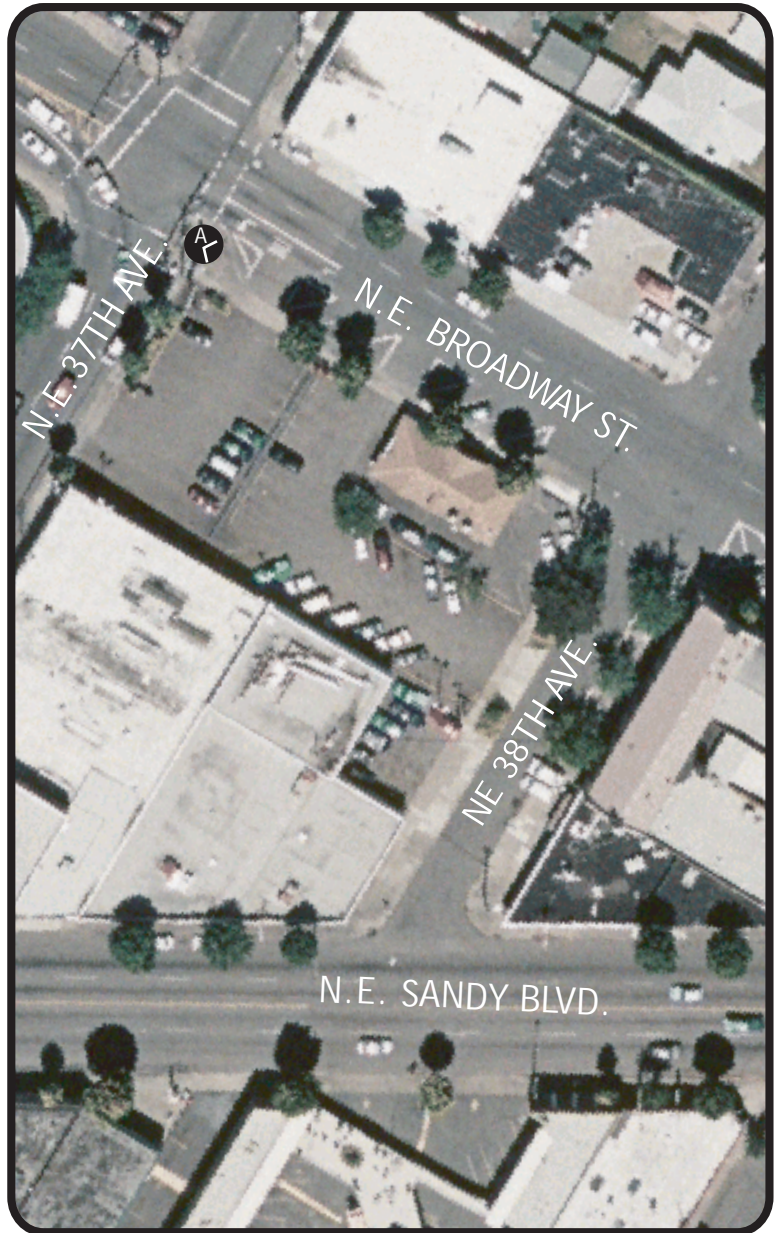


Proposed Improvements

Funded Projects

1. On the south side of Sandy Boulevard, at the leg of 37th Avenue, a crosswalk and pedestrian refuge island will connect the discontinuous sidewalk on the north side of Sandy Boulevard with the continuous sidewalk on the south side.
2. On the north side of Sandy Boulevard, a right turn only lane will begin west of 38th Avenue, as will a new bike lane. Signage will direct highway-bound vehicles to the right turn lane, which will lead to the on-ramp. Buses stopped at the curb will be allowed to move through the intersection a few seconds before other through-traffic.

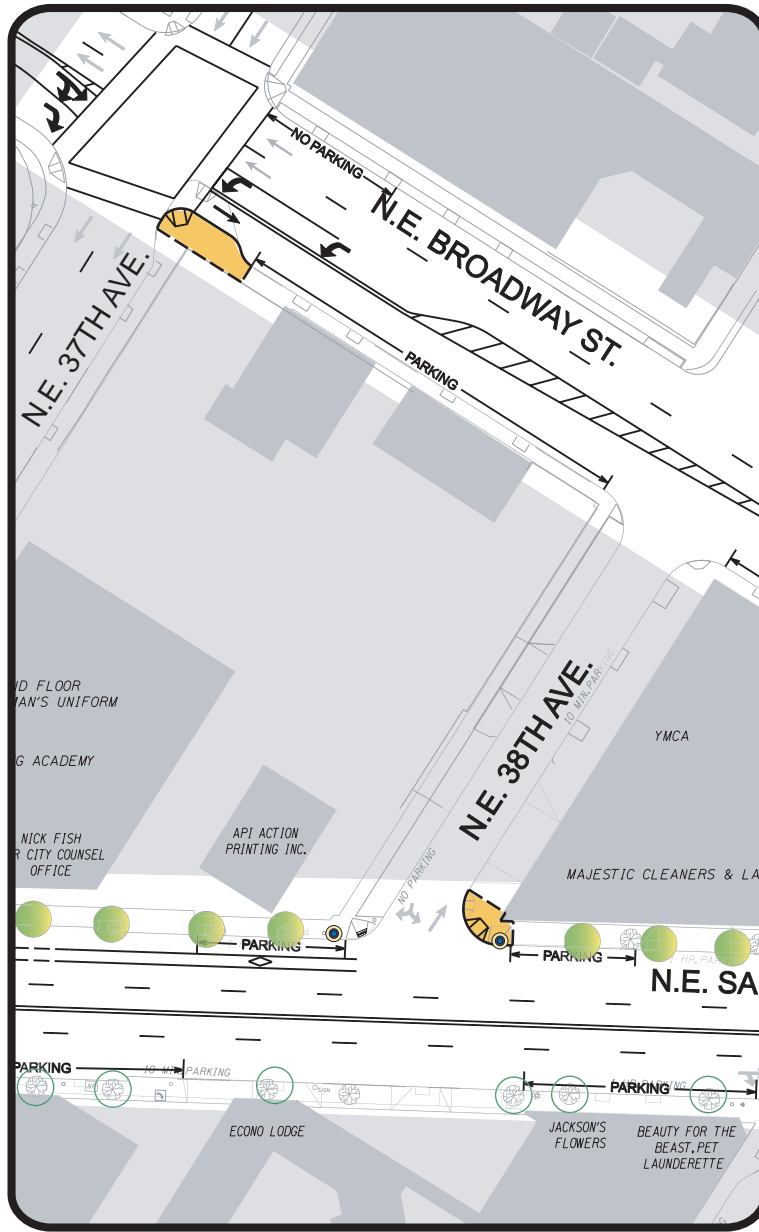
3. The eastbound bus stop will be moved from the east side of 37th Avenue to the southwest corner of Sandy Boulevard and Halsey Street.
4. A new crosswalk will be added to allow pedestrians to cross Sandy Boulevard on the west leg of the intersection.
5. A concrete curb will be installed in the center of Sandy Boulevard to prohibit eastbound traffic from turning onto the I-84 on-ramp.
6. On the south side of Sandy Boulevard, signage or striping will be added to clarify where eastbound cyclists should ride, relative to vehicles turning right onto Halsey Street.



Existing Conditions



A View to the east of NE Broadway Street.



Proposed Improvements

Funded Projects

1. North of Sandy Boulevard, Broadway Street will operate as a two-way street. This change will require reducing the size of curb extensions on the south side of Broadway Street at 37th Avenue.

4. New signage on 37th Avenue north of Sandy Boulevard will reduce confusion and improve wayfinding for southbound vehicles.



Existing Conditions



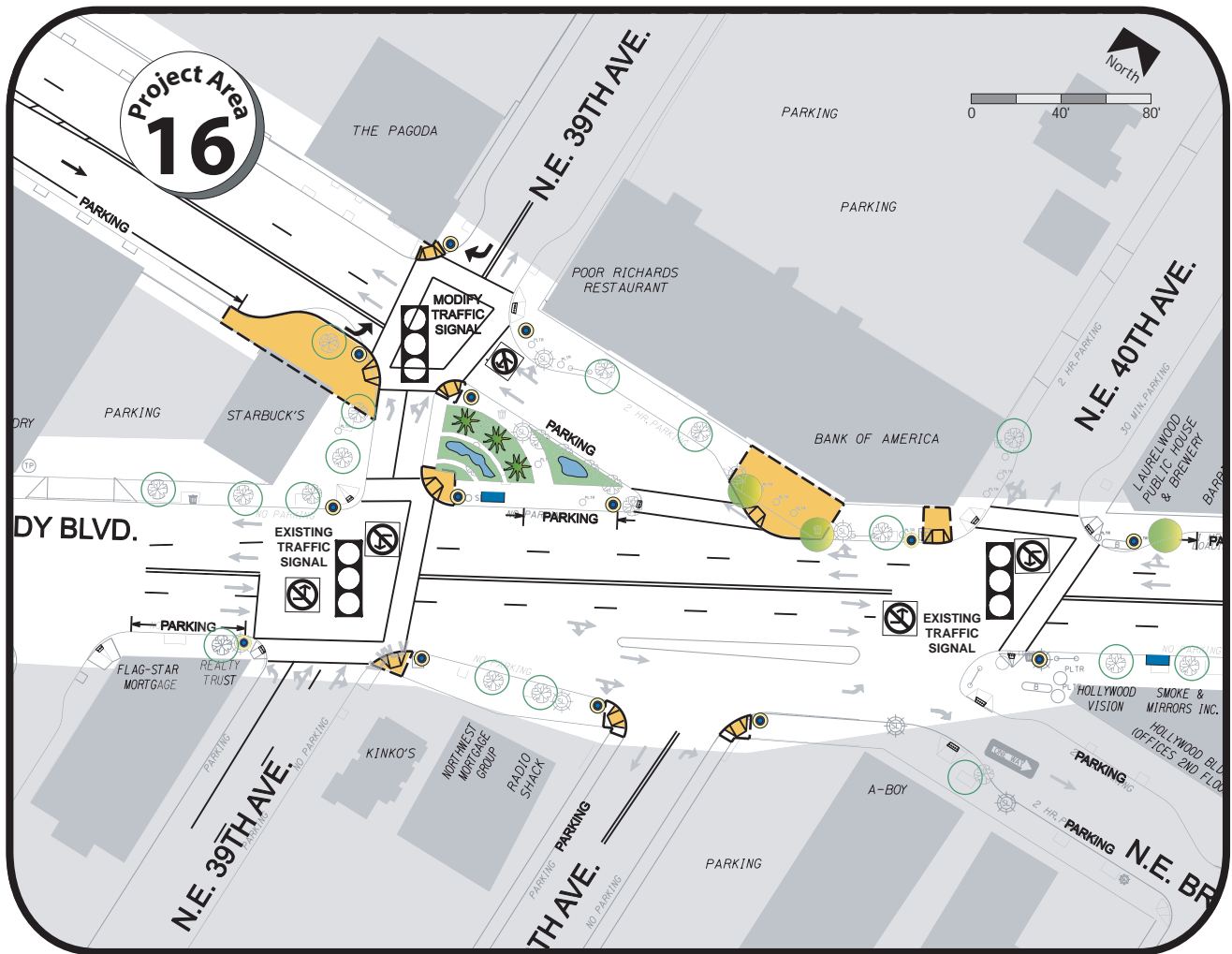
A The northwest corner of Sandy Boulevard and 39th Avenue.



B View to the east of Broadway Street.



C View to the south of the intersection of Sandy Boulevard and 39th Avenue.



Proposed Improvements

Funded Projects

1. North of Sandy Boulevard, Broadway Street will operate as a two-way street. This change will require reducing the size of curb extensions on the south side of Broadway Street at 39th Avenues. NE 39th Avenue will remain a one-way street, westbound vehicles on Broadway will turn left when they reach 39th Avenue.
2. The island in the center of Sandy Boulevard, 39th Avenue, and Broadway Street will be redeveloped as a landscaped water retention and water quality swale, and on-street parking spaces will be added.
3. An extension of the northeast corner of Sandy Boulevard and Broadway Street will reduce the crossing distance and encourage turning vehicles to slow down.
4. A new signbridge on 39th Avenue south of Sandy Boulevard will reduce confusion and improve wayfinding for northbound vehicles.
5. Channelize the intersection of Sandy Boulevard and 39th Avenue to better facilitate dual left turns.



Existing Conditions



A View to the east of the north side of Sandy Boulevard.



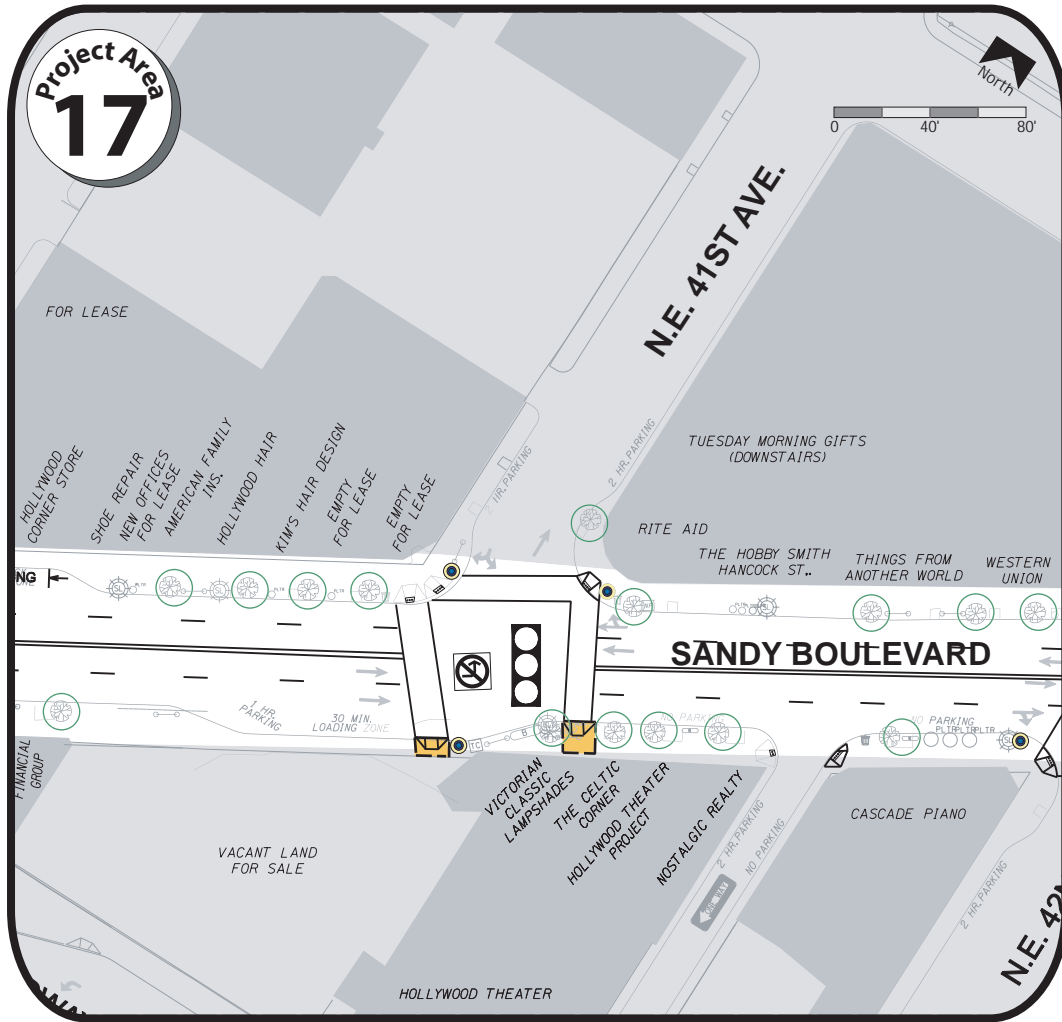
B View of shops on the north side of Sandy Boulevard.



C The landmark Hollywood Theater on the south side of Sandy Boulevard.



D View to the east of the sidewalk on the south side of Sandy Boulevard.



Proposed Improvements

Future Projects

1. Investigate ways to increase the amount of on-street parking in this core area of the Hollywood District.



Existing Conditions



A Building at the northeast corner of Sandy Boulevard and 42nd Avenue.



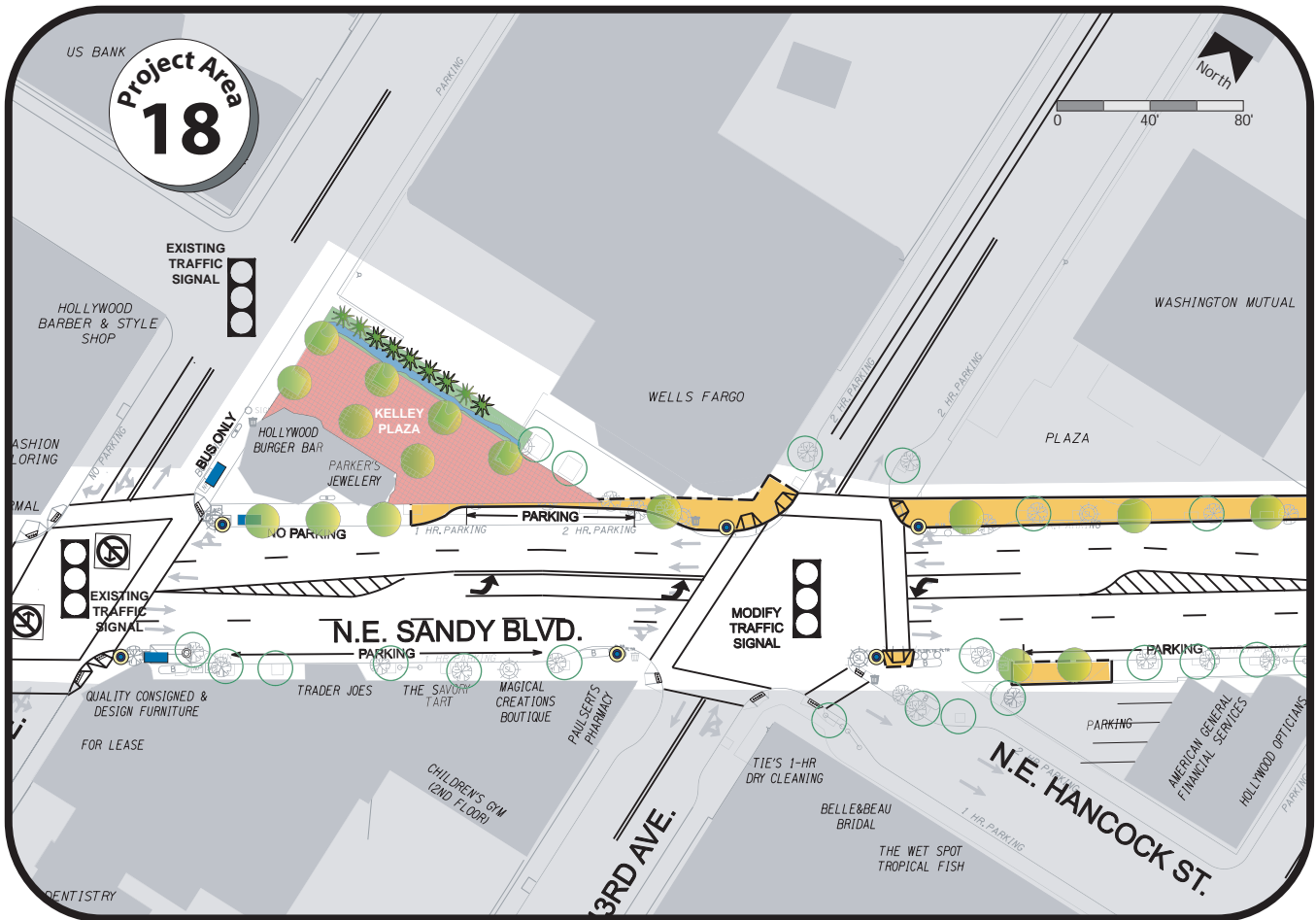
B Kelley Plaza on the north side of Sandy Boulevard.



C Market on the south side of Sandy Boulevard.



D View west of the sidewalk on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

1. Vehicles on Sandy Boulevard will be allowed to turn left onto 43rd Avenue from new left turn pockets. The signal will include a left turn phase to protect this movement. Adding the left turn lanes will require removal of parking spaces on the north side.
2. Kelley Plaza will be improved as a public and pedestrian space, and will include a landscaped stormwater management area.
3. On the east side of 43rd Avenue, the sidewalk on the north side of Sandy Boulevard will be reconstructed without the existing curb extension to provide width for the left turn pocket.
4. The westbound bus stop will move to the east side of 42nd Avenue to better facilitate transfers between bus lines 12 and 75.



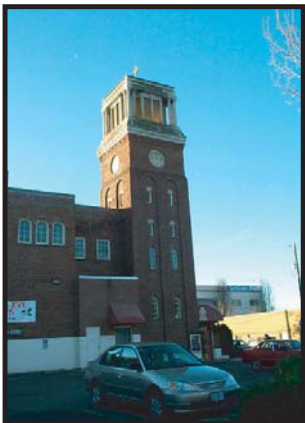
Existing Conditions



A Iconic building at the northeast corner of Sandy Boulevard and 45th Ave.



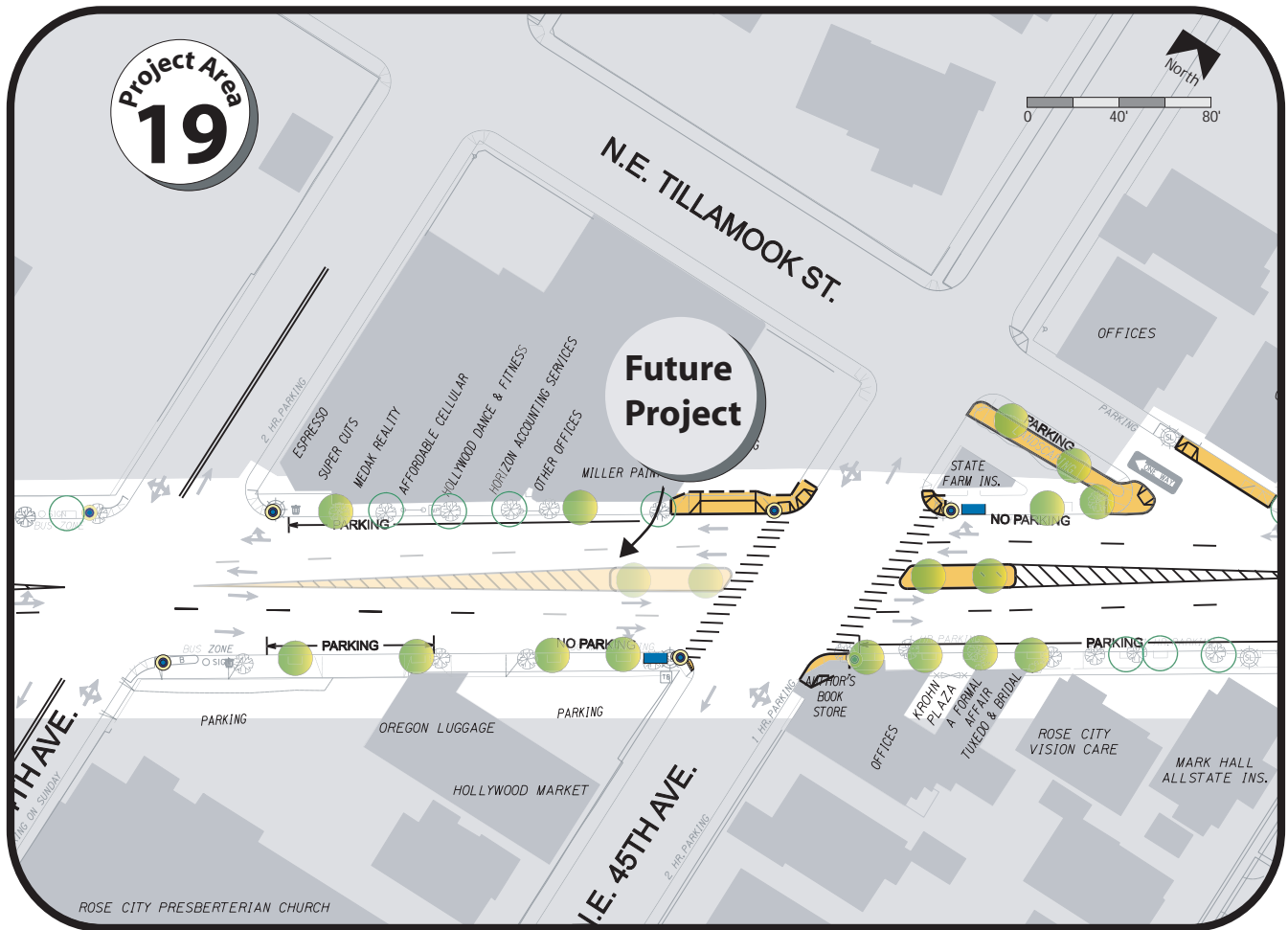
B View to the west from the north side of Sandy Boulevard.



C Church at 44th Avenue on the south side of Sandy Boulevard.



D Retail building on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

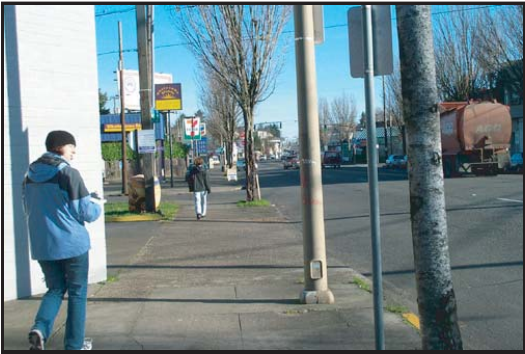
1. On the north side of Sandy Boulevard, the driveway to Miller Paint will be reduced.
2. At the unsignalized intersection of Sandy Boulevard and 45th Avenue, there will be a new pedestrian refuge island on the east side.
3. Parking spaces will be lost on the north side of Sandy Boulevard between 45th Avenue and Tillamook Street. To mitigate for this loss, on-street parking will be added to a widened Tillamook Street.
4. The intersection of Sandy Boulevard and Tillamook Street will be marked as a gateway to the Hollywood District and stop signs will be installed at the corner of Tillamook Street and 45th Avenue.
5. The bus stops now at 44th Avenue will move to coordinate with the new pedestrian crossing at 45th Avenue.

Future Projects

1. A pedestrian refuge island could be constructed on the west leg of Sandy Boulevard when freight access needs allow.



Existing Conditions



A View to the east of the sidewalk on the north side of Sandy Boulevard.



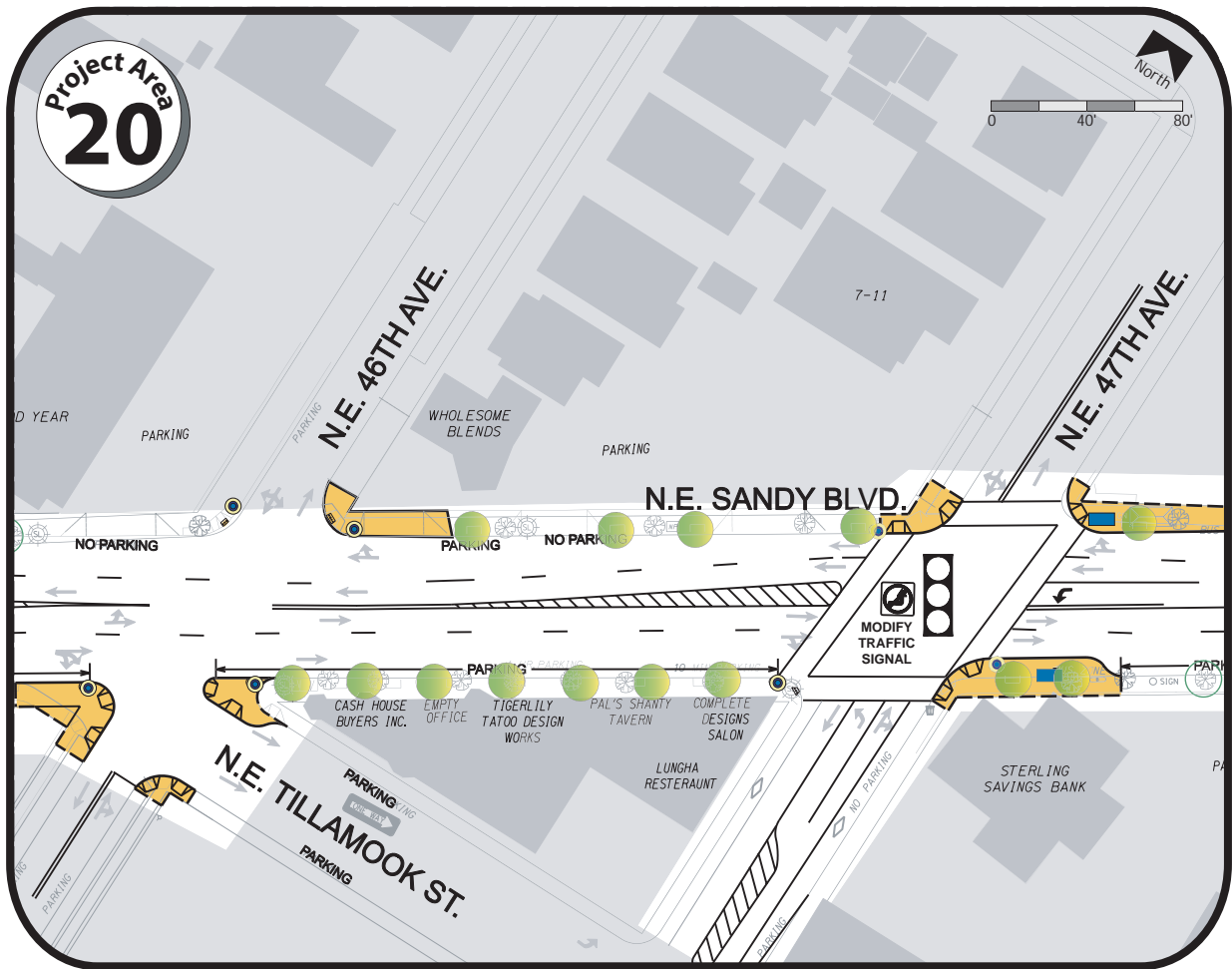
B View to the east of Sandy Boulevard.



C South side of Sandy Boulevard.



D View to the west of the sidewalk on the south side of Sandy Boulevard.



Proposed Improvements

Funded Projects

1. On the southwest corner of Sandy Boulevard and 46th Avenue, the curb will extend to the east, to reduce the pedestrian crossing distance along Sandy Boulevard.
2. At the intersection of Sandy Boulevard and 47th Avenue, left turns will be prohibited from Sandy Boulevard to the north, while vehicles turning to the south will have a protected signal phase and left turn pocket.
3. Transit curb extensions will be constructed on the southeast and northeast corners of the intersection.
4. One unused driveway on the north side of Sandy Boulevard will be removed.
5. On 47th Avenue, a new left turn pocket will be provided for vehicles waiting to turn left onto Sandy Boulevard. The northbound bike lane will be moved toward the curb, and parking spaces will be removed on the east side of 47th Avenue.